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# Crude Oil Production Becoming Normal

Average daily production in United States week ending Feb. 2, 1,921,885 bbls.

## Flush Fields Showing Continued Declines While Other Areas Are Increasing Output in Line With Steadily Growing Demand

Gain in daily production in United States week ending Feb. 2, 27,113 bbls.

By Andrew M. Rowley

It is doubtful if there ever was another period in the history of the petroleum industry when such a close study was being made of facts pertaining to the production, consumption and stocks of crude as is now the case on the part not only of producers, refiners and distributors of oil but also by supply and equipment men, large manufacturers, transportation concerns and others whose business depends on or relates directly or indirectly to conditions affecting the crude oil market. It is a healthy sign and indicates a determination to be fully informed and ready to take complete advantage of the prosperity which present conditions seem to assure for the industry during this year.

Outstanding features of the present situation are: Production is less now than consumption; production is returning to a normal basis, that is, the flush fields which caused the trouble last year are getting down to a settled output while other fields which were forced to curtail operations during the depression of 1923, are gradually increasing their output as the demand for crude grows and prices advance; consumption is increasing and the "period of minimum consumption" formerly applied to the winter months seems now to be a thing of the past; and, there are no new fields in sight at this time to make up the deficiency between production and consumption which exists now and which will become greater as the year advances if the industry is to depend for its supply upon the present oil producing areas.

### Stocks Really Not Excessive

The amount of crude in storage at refineries, tank farms, pipe lines and elsewhere throughout the country, amounting to about 333,000,000 barrels on January 1, should not be deemed excessive. It is generally conceded that consumption during 1924 will show an increase of more than 20 per cent over 1923. Figuring on an increase of just 20 per cent, the amount of crude petroleum in storage means a supply for just four and two-thirds months, based on consumption. For the second greatest industry in the United States, a supply for less than five months could hardly be called excessive.

Including the increase of 27,113 barrels daily registered in production during the past week, the output of crude at this time is at a rate of only 701,000,000 barrels a year while a conservative estimate of consumption places it during 1924 at 855,000,000 barrels, leaving a deficit of 154,000,000 barrels. Production of the present fields of the country is not expected to show any great increase, in fact, it will do well to hold its own as decreases may be expected in a number of areas.

### Oklahoma Returning to Normalcy

With all restrictions on development work lifted, Oklahoma again is experiencing conditions more nearly approaching normal. Production during the past week showed an increase of more than 22,000 barrels daily while Burbank again went over the 100,000-barrel mark. The field produced an average of 121,764 barrels daily during the week ending July 7, which is its peak record to this time. Proration of runs and the shutdown agreement soon forced production down and the output dropped to below 70,000 barrels a day. With the removal of restrictions on drilling, the output has increased rapidly, gaining 13,000 barrels daily last week. Burbank dropped below 100,000 barrels daily during the week ending September 29, when it averaged 99,416 barrels, dropping from 101,525 barrels daily the week before.

The Hewitt Field in southern Oklahoma registered a really greater gain than Burbank, increasing its output from 22,450 barrels daily to 33,475 barrels, due to the continued large and steady production of gusher completions. This new production comes from the deep sand developed at Hewitt. The big increase at Hewitt and from Burbank resulted in Oklahoma's production going above the 400,000-barrel mark for the first time since last October, but it is still far below the 527,000-barrel-daily mark reached last year. The Tonkawa Field aided greatly in permitting the State to reach that record but this field now is declining steadily and last week produced an average of 38,750 barrels daily as against more than 100,000 barrels daily during a period last year.

### Production Reaching Settled Basis

During the past week a gain of 27,113 barrels daily was registered in the production of crude throughout the entire country. Of this amount, Oklahoma contributed more than 22,000 barrels and the Gulf Coast area showed an increase of more than 6,000 barrels. Oklahoma is not expected to show such large increases in the future. Burbank probably will enlarge its output some more, and, when development work starts on the 100,000 acres to be leased by the Government at the Osage sale next month, it seems probable the field may surpass its peak of 1923, but that will require some time. It will require considerable development work to hold the State's production up to its present figure and no material increase in output over an extended period of time is expected.

California continues to decline. Santa Fe Springs last week dropped to 125,000 barrels daily or just slightly more than what it was producing this time last year. But then it was on its way up to a peak of 338,000 barrels and now it is still falling, its decrease last week averaging 8,000 barrels daily. The entire State showed a decline of more than 9,000 barrels daily.

### Important Development in Mexico

A factor of far reaching importance to the general situation in the United States developed late last week in Mexico where salt water invaded the prolific Cacalilao sector of the Panuco Field and immediately resulted in a drop of 23,000 barrels daily in the output there. Anything affecting production in Mexico is of paramount importance to the industry in this country for practically all of our imports of crude come from Mexico. The incursion of salt water at Cacalilao probably means a big falling off in the output there which eventually will be reflected in decreased shipments to this country. Any decrease in receipts of Mexican crude at this time when tanker shipments around through the Panama Canal from California are dropping and showing indications of being reduced almost to a vanishing point within the near future will mean but one thing—a more rapid drawing upon stocks held in the Eastern, Mid-Continent and Gulf Coast areas.

Additional substantial advances in the posted prices for crude were posted during the past week by purchasing companies in various areas of the country. The Prairie Oil & Gas Company started the ball rolling again last Saturday when it increased prices in Oklahoma, Kansas and North Texas from 15 to 25 cents a barrel. A detailed account of the advances will be found elsewhere in this issue.

### PRODUCTION IN THE UNITED STATES

**Estimated daily average production in the oil fields of the United States for the week ended February 2, and a comparison with the previous week follows:**

| Fields: | Feb. 2 | Jan. 26 |
|---|---|---|
| **Oklahoma—Northern Fields:** | | |
| Tonkawa | 38,750 | 39,875 |
| Burbank | 100,100 | 87,100 |
| Other Osage Fields | 31,780 | 31,740 |
| Cushing and Shamrock | 24,075 | 24,100 |
| Bristow and Eastern Bristow | 45,125 | 45,300 |
| Northern Miscellaneous | 89,540 | 89,560 |
| **Southern Fields:** | | |
| Healdton | 16,950 | 17,015 |
| Hewitt | 33,475 | 22,450 |
| Southern Miscellaneous | 27,050 | 27,450 |
| Total Oklahoma | 406,845 | 384,590 |
| Northern Louisiana | 53,875 | 52,605 |
| **Arkansas—** | | |
| El Dorado and Calion | 15,310 | 15,435 |
| Smackover Light | 22,420 | 22,965 |
| Smackover Heavy | 71,620 | 71,150 |
| Stephens | 2,895 | 2,775 |
| Total Arkansas | 112,245 | 112,325 |
| North Central Texas | 110,425 | 108,467 |
| East Central Texas (Mexia, Currie, Corsicana, Powell) | 136,875 | 135,950 |
| Kansas | 71,475 | 71,450 |
| Total Mid-Continent Area | 891,740 | 865,387 |
| Gulf Coast | 92,150 | 85,945 |
| Eastern | 108,025 | 108,425 |
| Wyoming-Montana | 150,470 | 146,265 |
| **California—** | | |
| Santa Fe Springs | 125,000 | 133,000 |
| Long Beach | 229,000 | 228,000 |
| Huntington Beach | 63,000 | 65,000 |
| Torrance | 35,500 | 35,000 |
| Remainder State | 229,000 | 227,750 |
| Total California | 679,500 | 688,750 |
| Total United States | 1,921,885 | 1,894,772 |

**Increase, 27,113 Barrels**

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# Weather Factor In Group 3 Market

## Minimum Gasoline Demand Brought About By Stormy Weather Prevents Refiners Taking Full Advantage Of Tank Wagon and Crude Advances

By C. O. Willson

A crude advance by the major purchasing companies on Saturday and a 2-cent advance in gasoline tank wagon and 1 cent in kerosene tank wagon prices in the Standard of Indiana territory on Tuesday and Standard of Nebraska territory today (Wednesday) were developments of the past week which had their usual close relationship to market trends in Group 3. The advance in the posted price of crude meant an approximate 15 per cent increase in cost of raw material to practically all of the Oklahoma refiners. Under the new plan of purchase with five grades the crude below 30 degrees gravity was not advanced. However, not more than a half dozen refiners in Oklahoma buy crude of that low gravity and their purchases cover only a part of their supply.

To offset this advance in the cost of raw material the tank wagon changes mentioned are of some aid. To the refiners with marginal contracts it means a 2-cent advance in the prices they receive for gasoline. Many Group 3 refiners with marginal contracts in the Middle West territory are now receiving around 10½ cents for New Navy deliveries. The Chicago tank wagon price is now 18 cents. Figuring a 4½-cent margin to the jobber with 2.376 cents per gallon freight rate, it will be seen that a contract would now net the refiner 11.124 cents. However this only approximates the real situation. These marginal contracts now vary so greatly as to terms that it is impossible to pick out a particular case and state that it represents an average situation. It is known in fact that many of these contracts are now netting the refiners around 10 cents rather than 11 cents. One refiner with a large number of these contracts is understood to be averaging slightly under 10½ cents in his contracts based on the present tank wagon price structure in the Standard of Indiana territory.

### Fuel Oil Affected

The other change which follows automatically the advance in the posted price of crude oil applies to the fuel contracts which cover a substantial part of the fuel oil output of Group 3 refineries. As has been noted in these columns before, there has been some difference of opinion among refiners and the buyers as to the terms of these contracts since the Prairie Oil & Gas Co. disturbed the situation January 9 by announcing a four-schedule plan of purchase for Mid-Continent crudes with an advance in price. The buyers and sellers in at least a few cases have not yet made a permanent contract. However, some contracts have been adjusted. These adjustments have uniformly been in favor of the refiners. That is, the refiners are securing a larger return for their fuel oil output based on the price of crude than they were last year. Some contracts following the first advance by the Prairie were adjusted on a flat basis of $1 with the seller to get 60 per cent of any advance in crude of 36 degrees to 38.9 degrees gravity. On this contract the refiner under the latest crude advance is now getting $1.27. Some contracts with a different basis are getting slightly more than this while others are getting less.

### Open Market

Up to this time the open market on gasoline and fuel oil had not been able to take full advantage of the crude and tank wagon changes. The market was practically undisturbed by the crude advance on Saturday despite the fact that it was felt a tank wagon advance would materialize within a few days. On Tuesday, after the tank wagon advance became effective, a majority of the refiners advanced their gasoline prices. The amount of the advance varied, depending apparently on whether the refiner was anxious to move some material from his plant. Cosden & Co., which has been out of the spot market in New Navy for some time, announced a 13½-cent price to the trade. So far as known this is the highest price, although others are reported as high as 13 cents. The average is probably around 12½ cents, although it will be several days before it will be possible to determine just what figure a majority are going to ask. Approximately the same advance was made in other gasolines.

New Navy, however, can be purchased in limited quantities under the 12½-cent quotations. Just how much could not be determined at this writing due to the fact that there was little demand regardless of price.

Those who keep in close touch with market developments state it will be impossible to gauge the gasoline market trend until weather conditions improve. It is unfortunate for the refiners that the crude and tank wagon advances materialized at a time when practically the entire area in which Group 3 disposes of its gasoline output was experiencing the worst storm of the year. This storm extended through Oklahoma so that intrastate demand was also reduced to a minimum. Wire service was demoralized so that some refiners had no connection with their sales office in Chicago and other points. With practically no inquiries from their jobbing customers refiners were in a quandary as to what to do in regard to price changes. The storm development bears out the prediction of many that February would be a poor month from the point of gasoline consumption and that refiners would have difficulty in advancing their prices regardless of increases in the cost of raw material or advances in the price to the consuming public.

### After the Storm

A representative opinion seems to be that present prices can be maintained, provided there is normal buying on the part of the jobbers when the storm is over. Recently representatives of refining and marketing organizations located in Oklahoma have made trips to the consuming centers of the Middle West to determine conditions among the jobbing trade. Their reports are conflicting, some stating that the jobbers have little gasoline or kerosene in stocks, while others found the tanks of the wholesalers full. Unquestionably an accurate survey of this situation would be an aid in gauging gasoline market conditions for the next six weeks. If the stocks are comparatively light in the face of an advancing market, the jobbers who depend on the spot market for the whole or part of their gasoline supply can be expected to fill their tanks. On the other hand, if they have already done this, as some contend, they will only buy to supply current demand, which is an uncertain quantity at this season of the year.

As having important bearing on the situation, attention is called to the monthly refining survey of The Oil and Gas Journal, covering Mid-Continent operations found elsewhere in this issue. It shows an increase in refinery crude runs of 31,000 barrels since the first of the year. Past experience gives all the needed proof that, considered strictly from Group 3 and Mid-Continent refined market viewpoint, this is an unfavorable development. The last weekly report of the Western Petroleum Refiners' Association, covering the same area, shows that stocks of gasoline and kerosene continue to climb and in the case of a few refineries at least, these stocks can already be labeled "distress." This situation, of course, does not apply to the refiners with empty tanks who state that they are not worried so much as to an oversupply of gasoline as to not being able to obtain a reserve large enough to meet their summer requirements.

### Increased Runs Factor

These increased runs on the part of Mid-Continent, no doubt, was also a factor in bringing about the advances in the posted price of crude oil, also an unfavorable development from the refiner's standpoint so long as he cannot advance his gasoline prices. Oftentimes, as was pointed out by a refinery official, a plant starting up can seriously disturb the crude price structure for an entire field by offering premiums for a comparatively small amount of crude oil. This situation has materialized in several instances recently and many market observers have no hesitancy in stating that it is entirely responsible for the unfavorable developments of the past three weeks.

Although some of the trade, considering these factors, are still inclined to be pessimistic as to the future market trend of the refined market as it affects Group 3, constantly calling attention to what "happened last year," the more optimistic are consistently able to point to developments supporting their viewpoint. Chief among these during the past week was the second California crude advance. Not only California crude, but that of every producing section, has been advanced as much or more than that in the Mid-Continent.

They point out that the California situation, especially, is entirely different from that which existed a year ago at this time. Then the California prices did not follow the Mid-Continent increases and the situation was reflected in the flood of cheap refined products from that area. Since the first California crude advance it is rare to hear a refiner complain of outside competition in the area in which Group 3 is accustomed to dispose of its gasoline and other products. Refiners everywhere are faced with increasing crude costs and for that reason none is in a position to go out and underbid their competition.

### Gasolines and Naphtha

The open market situation, in regard to gasolines, has been explained. The movement of all grades was slow. Sinclair Refining Co. bought a small quantity of 64-66, 375 for export the latter part of last week and is understood to have purchased a larger quantity in North Texas. This buying stopped the first of the week when refiners advanced their prices. There were several inquiries for 60-62, 400, but only small orders placed. Little naphtha is offered on the spot market.

### Kerosene and Distillates

Most refiners advanced their kerosene prices following the announcement of the higher tank wagon price. Several refiners made a corresponding advance in their distillates. There had not been time at this writing to determine just what the attitude of the trade would be to these higher prices which ranged from 6¼ to 6¾ cents to the trade for water white grades. Refiners do not anticipate any objections from the jobbing trade, since the advance was about half of the tank wagon increase. Outside buyers are not yet in the market and their attitude will determine the permanent market development. The demand for distillates has been fair and the movement practically

(Continued on Page 107)

## REFINED MARKET BAROMETER

The refined market throughout the United States during the past week was comparatively quiet. Prices are higher in several refining areas but the advancing market was not so apparent as it has been during previous 7-day periods since the first of the year. Cold and stormy weather brought a minimum gasoline consumption throughout the Middle West and the situation was reflected in a slow gasoline movement from the refineries which serve that area. Crude prices were again advanced in a majority of the producing areas and this served to cause refiners to refuse to give price concessions. Kerosene prices were advanced in most refining areas. There was no change in the fuel oil situation except in the East where prices were advanced. Gasoline and Kerosene tank wagon prices were advanced in several marketing centers.

**Mid-Continent**—With unfavorable weather held responsible the week was dull in all areas. Crude costs were advanced but refiners in most instances were unable to advance their prices accordingly although important tank wagon changes lent encouragement to an advancing market. Gasoline prices were advanced from ½ to 1 cent in all areas, although the movement was the slowest in several months, due to the storms. Kerosene prices were advanced in all areas except North Louisiana, where no change was made. Fair to strong demand for distillates with prices advancing. Fuel oil prices higher in Group 3 and Kansas but practically no change in other sections. Natural gasolines and blends higher with no general change in the demand. Neutrals advancing with a fair to strong movement.

**Atlantic Seaboard**—Prices advancing on all products. Refiners advanced their gasoline prices in line with higher tank wagon and export schedules. Lubricating oils advanced from 2 to 4 cents and wax prices from ⅛ to ½ cent. Fuel oil advanced with Standard of New Jersey quoting $1.60 on Bunker fuel oil. Export demand for gasoline fair with another 1-cent advance in quotations. Second advance in California crude expected to result in higher refinery and jobbing prices.

**Chicago**—Refiners seek higher prices following Mid-Continent crude and Standard of Indiana tank wagon advances. Gasoline movement slow due to unfavorable weather throughout Middle West and there was little demand for gasoline for spot shipment regardless of price. A considerable quantity of "distress" gasoline available for spot shipment. Kerosene firm with advances where there were any changes. Fuel oil weak and prices practically unchanged despite advancing crude market. Lubricating oils strong.

**Pennsylvania**—Little change in market. Following latest advance more crude oil available to refiners. Kerosene prices generally higher. Fair demand for gasolines and refiners have been able to maintain recent price advances.

**Gulf Coast**—Heavier grades of zero test lubricants advanced following latest change in crude prices; 200 and 300 viscosity oils advanced ½ cent and 500 and 750 viscosities 1 cent. Inquiries for summer oils start. Demand for all products satisfactory. Fuel oil prices expected to slump later.

# Next Osage Sale Will Occupy 2 Days

## Over 100,000 Acres Will Be Offered On March 18 and 19 Among Which Are Some Choice Burbank Tracts Close to Producing Leases

By James McIntyre

Over 100,000 acres of Osage Indian land will be offered for lease for oil development at a two-day auction sale to be held in Pawhuska on Tuesday and Wednesday, March 18 and 19.

On the first day 300 tracts, comprising 47,507.23 acres, lying east of Range 8, and 16 tracts, comprising 2,560 acres, lying west of Range 8, will be auctioned and on the second day 298 tracts, comprising 47,198.15 acres east of Range 8 and 19 tracts, or 3,040 acres, west of Range 8, will be offered. All but 17 of the 633 tracts are full quarter sections, 160 acres.

Leases in the Burbank district will be offered on both days. Seven tracts close to already developed Burbank acreage will be auctioned on the first day, and 10 quarter sections of close-in leases will be put up on the second day.

One of these sales should have been held several months ago, but was postponed by the Interior Department because of demoralized conditions in the industry brought about by the over-production of crude. The action of the department was taken at the request of the Osage Oil & Gas Lessees Association and met with general commendation.

### Terms of Sale

The terms of the coming sale provide among many other things that on each lease purchased at least one well shall be drilled to the Mississippi lime within 12 months, unless oil or gas shall be found in commercial quantity at a lesser depth, although this time limit may be extended for cause. The royalty on oil is one-sixth except on leases where the production during any calendar month is sufficient to average 100 or more barrels per day per well, in which case the royalty shall be one-fifth. Twenty-five per cent of the bonus money must be paid on the day of sale and the balance when so desired in one, two and three years, from the date of approval of the lease with interest at 5 per cent.

No limitation is placed on the number of leases that may be bought west of Range 8. On the east side, east of Range 8, no person, firm or company may hold more than 20,000 acres.

The Secretary of the Interior reserves the right to reject any bid or to disapprove any lease made in accordance with any bid.

### $76,736,124.36 For Leases

There have been 21 Osage Lease sales, the first of which was held November 11, 1912, at which time 24,541 acres were auctioned and upon which the Indians realized $39.436 in bonus money. The sale at which the largest total was realized was held June 28, 1922, when 33,220 acres were sold for $10,889,700. The next sale held January 18, 1923, brought $6,215,700 and the sale held April 5, 1923, brought $8,029,100 for 23,640 acres.

In all, 694.827 acres have been offered for sale, and 546,836 acres have been sold, for which the Osage Indians realized $76,736,124.36 in bonuses alone.

The coming sale will result in some very active bidding on the part of the large and well-financed oil companies, as there are a number of tracts to be sold which offset leases that have already shown large production.

That part of the Burbank Field lying in Osage County is credited with having produced 55,790,345 bbls. of crude up to January 16, 1924. The field was opened in May, 1920, by the Marland Refining Co. in the northeast quarter of Section 36-27-5. It was extended into Kay County in January, 1923, and the Kay County side of the field under the restricted development conditions of the past year produced 6,983,798 bbls. up to January 16, 1924. There were 1,070 oil wells on the Osage side and 66 on the Kay County side of the field in mid-January, when the above production figures were made up.

STATEMENT OF INDIVIDUAL OSAGE LEASE SALES

Showing Date of Sale, Total Acreage Offered, Total Acreage Sold, and Total Amount Realized as Bonus

| Osage Sale No. | Date | Acreage Offered | Acreage Sold | Total Amt. of Bonus |
|---|---|---|---|---|
| 1 | November 11, 1912 | 107,594 | 24,541 | $ 39,436.00 |
| 2 | September 29, 1913 | 12,049 | 10,132 | 498,182.58 |
| 3 | April 30, 1916 | 17,280 | 14,377 | 2,057,600.00 |
| 4 | June 20, 1916 | 3,020 | 2,482 | 1,169,280.78 |
| 5 | May 31, 1917 | 9,120 | 8,160 | 1,947,600.00 |
| 6 | November 12, 1917 | 20,621 | 19,869 | 1,677,200.00 |
| 7 | February 14, 1918 | 32,160 | 25,440 | 1,275,500.00 |
| 8 | May 18, 1918 | 51,400 | 35,980 | 1,180,575.00 |
| 9 | November 9, 1918 | 43,040 | 34,720 | 3,350,200.00 |
| 10 | March 5, 1919 | 21,000 | 20,520 | 2,790,925.00 |
| 11 | June 6, 1919 | 39,251 | 38,451 | 3,884,925.00 |
| 12 | October 6, 1919 | 35,310 | 34,670 | 6,056,950.00 |
| 13 | February 3, 1920 | 31,613 | 30,173 | 3,056,950.00 |
| 14 | May 18, 1920 | 31,783 | 31,303 | 2,851,900.00 |
| 15 | October 12, 1920 | 36,677 | 36,877 | 3,993,750.00 |
| 16 | June 14, 1921 | 26,588 | 25,918 | 4,559,100.00 |
| 17 | December 12, 1921 | 36,414 | 35,665 | 7,261,600.00 |
| 18 | March 2, 1922 | 37,184 | 33,467 | 3,949,950.00 |
| 19 | June 28, 1922 | 34,660 | 33,220 | 10,889,700.00 |
| 20 | January 18, 1923 | 34,073 | 24,231 | 6,215,700.00 |
| 21 | April 5, 1923 | 33,790 | 23,640 | 8,029,100.00 |
| | Total | 694,827 | 546,836 | $76,736,124.36 |

Average price per acre, $118.80.

### Close-in Burbank Leases

The close-in leases in Burbank to be offered for sale and the producing properties which they offset are given below. The production figures given in all cases represent the accredited production up to January 16, 1924.

Tract 306, southeast quarter of Section 18-27-6 is north of a lease of the Sinclair Oil & Gas Co., on which there are 14 wells that have produced 321,475 bbls. up to January 16, 1924. The first well came in in March, 1923. The Sinclair lease cost $615,000.

Tract 307, southwest quarter of Section 18-27-6, is north of a Gypsy Oil Co. lease which cost $1,100,000, the first well on which came in in March, 1923. It has 13 wells which have produced 875,460 bbls.

Tract 308, southeast quarter of Section 13-27-6, is north of a Phillips Petroleum Co. and Skelly Oil Co. lease on which there are 12 wells which have produced 1,142,199 bbls. The Phillips-Skelly lease cost $1,245,000 and the first well came in last March.

Tract 309, southwest quarter of Section 13-27-5, is north of the lease of a Phillips-Skelly interest which cost $1,005,000 and which had produced 1,847,701 bbls. from 16 wells, the first of which was completed in October, 1922.

Tract 310, the southeast quarter of Section 14-27-5, is north of a lease of the Gypsy Oil Co., opened in June, 1923, and on which eight wells have been completed with a total production of 714,574 bbls. The Gypsy lease cost $1,195,000.

Tract 311, southwest quarter of Section 14-27-5, is north of a lease of the Phillips Petroleum Co. which cost $1,005,000 and which has eight wells that have produced 373,149 bbls. The first well came in in June, 1923.

Tract 621, southwest quarter of Section 17-27-6, but is northeast of the Sinclair Oil & Gas Co.'s lease costing $615,000, opened in March, 1923, and which has produced 321,475 bbls. from 14 wells. It is south of the Peters & Oliphant lease which has one producing well.

Tract 622, northwest quarter of Section 20-27-6, is east of the Sinclair lease just referred to and north of another Sinclair property costing $415,000 opened to production in March, 1923, and now containing 16 wells that have produced 340,812 bbls.

Tract 623, southeast of Section 20-27-6, is east of the Sinclair lease last referred to and north of a lease of the Phillips Petroleum Co. and Skelly Oil Co. which cost $600,000, was opened to production in September, 1922, and which has 11 completed wells with a total up to January 16, 1924, of 538,197 bbls.

Tract 624, southeast quarter of Section 3-27-5, is east of a Kay County lease of The Texas Co., on which there is one producing well in the southwest corner credited with 99,050 bbls. up to the middle of January.

Tract 625, southwest quarter of Section 11-27-5, is east of a lease of the Waite Phillips-Delmar interests on which there are three wells with a total production of 616,721 bbls. The Phillips-Delmar lease cost $43,000. The first well came in last June.

Tract 626, northwest quarter of Section 14-27-5, is east of a lease of the Sinclair Oil & Gas Co. which cost $800,000, was opened to production last June and now has six completed wells with a total output up to mid-January, 1924, of 442,764 bbls.

Tract 627, northwest quarter of Section 26-27-5, is south of a lease of the Skelly Oil Co. with five wells which have produced 80,195 bbls. The first well came in last June. The Skelly Oil Co.'s lease cost $740,000.

Tract 628, southwest quarter of Section 26-27-5, is west of a lease of the Phillips Petroleum Co. and Skelly Oil Co. containing five wells that have produced 251,680 bbls. The first well came in in November, 1922. The lease cost $805,000.

Tract 629, northwest quarter of Section 35-27-5, is east of a lease of the Phillips Petroleum Co. costing $495,000 with nine wells which have produced 226,915 bbls. since October, 1922.

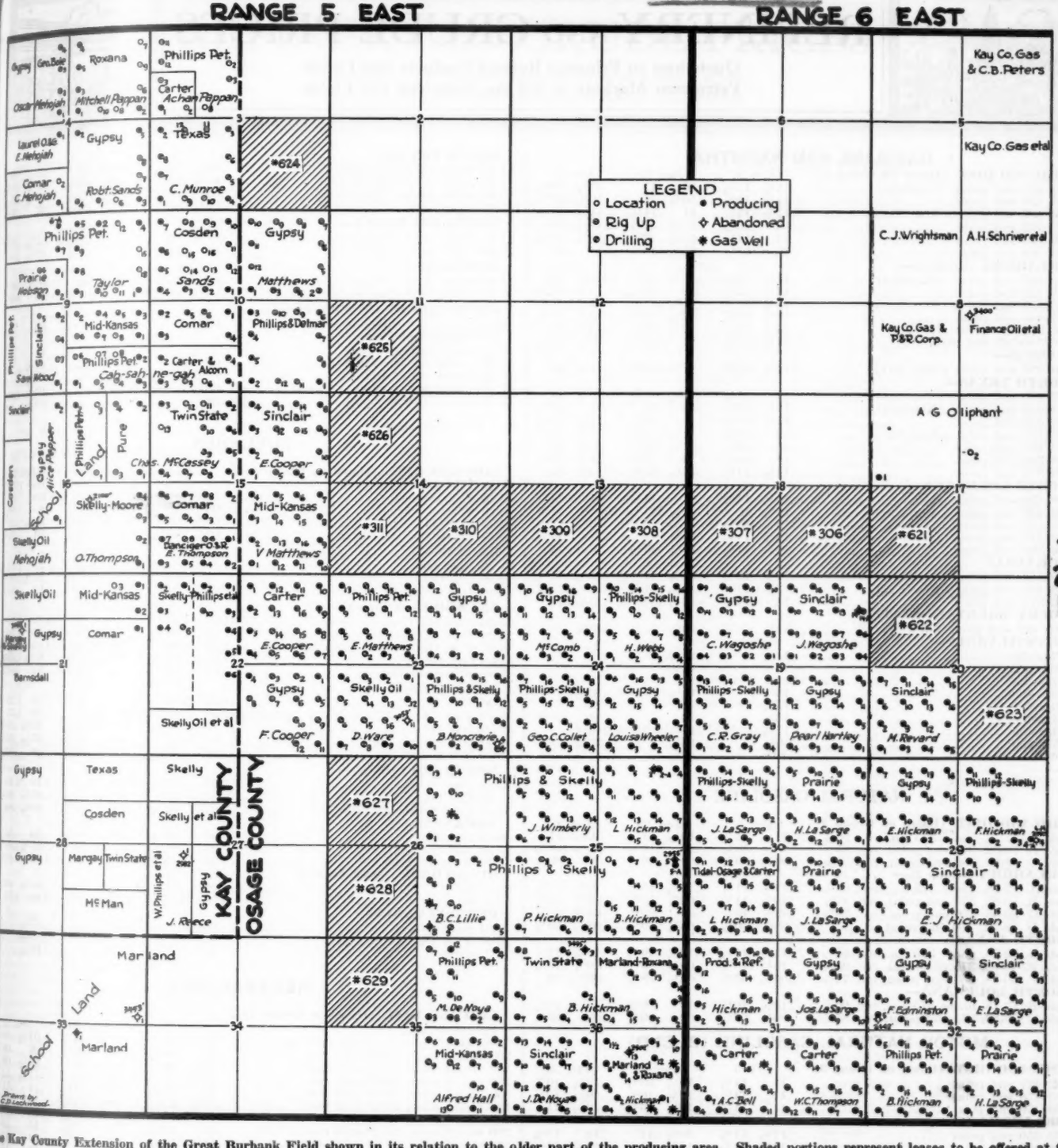
### Tracts to Be Offered

The tracts to be offered for lease at the sale next month follow:

**To Be Sold March 18, 1924, Schedule A.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | NW 19-22-12 | 20 | NW 17-28-12 | 39 | NE 12-20-11 | 129 | SW 2-22-10 |
| 2 | SW 19-22-12 | 21 | NE 20-28-12 | 40 | NW 12-20-11 | 130 | SE 5-22-10 |
| 3 | NE 28-22-12 | 22 | SE 20-28-12 | 41 | NE 13-20-11 | 131 | NE 9-22-10 |
| 4 | NW 28-22-12 | 23 | NW 29-28-12 | 42 | SE 22-20-11 | 132 | SE 9-22-10 |
| 5 | NW 33-22-12 | 24 | SW 29-28-12 | 43 | NE 8-21-11 | 133 | NE 2-24-10 |
| 6 | SW 5-27-12 | 25 | NW 30-28-12 | 44 | SE 8-21-11 | 134 | SW 2-24-10 |
| 7 | NW 6-27-12 | 26 | SW 30-28-12 | 45 | NE 18-21-11 | 135 | NE 3-24-10 |
| 8 | SW 6-27-12 | 27* | NW 34-28-12 | 46 | NE 21-21-11 | 136 | NW 33-24-10 |
| 9 | SE 9-27-12 | 28* | SW 34-28-12 | 47 | SE 21-21-11 | 137 | NW 8-23-10 |
| 10 | SW 9-27-12 | 29* | NW 15-29-12 | 48 | NW 1-22-11 | 138 | SE 8-23-10 |
| 11* | NW 3-28-12 | 30* | SW 15-29-12 | 49 | SE 9-22-11 | 139 | SW 8-23-10 |
| 12 | NE 4-28-12 | 31 | SE 16-29-12 | 50 | NE 29-22-11 | 140 | NE 16-23-10 |
| 13 | NE 5-28-12 | 32 | SW 16-29-12 | 51 | NW 29-22-11 | 141 | NW 16-23-10 |
| 14 | NW 5-28-12 | 33 | NW 30-29-12 | 52 | SE 4-25-11 | 142 | SE 16-23-10 |
| 15 | SE 7-28-12 | 34 | SE 30-29-12 | 53 | SW 6-25-11 | 143 | SW 16-23-10 |
| 16 | SW 7-28-12 | 35 | SW 30-29-12 | 54 | NE 7-25-11 | 144 | NW 4-24-10 |
| 17* | NW 15-28-12 | 36 | SE 2-20-11 | 55 | SE 9-26-11 | 145 | NE 5-24-10 |
| 18 | NE 16-28-12 | 37 | NE 11-20-11 | 56 | SW 9-26-11 | 146 | NE 18-24-10 |
| 19 | NE 17-28-12 | 38 | SE 11-20-11 | 57 | SW 18-26-11 | 147 | SE 18-24-10 |
| | | | | 58 | NE 22-26-11 | 148 | SW 18-24-10 |
| | | | | 59 | NW 22-26-11 | 149 | NW 20-24-10 |
| | | | | 60 | SW 22-26-11 | 150 | SE 20-24-10 |
| | | | | 61 | NE 26-26-11 | 151 | NE 35-24-10 |
| | | | | 62 | SE 26-26-11 | 152 | NW 35-24-10 |
| | | | | 63 | NE 27-26-11 | 153 | SE 7-27-10 |
| | | | | 64 | NW 27-26-11 | 154 | NE 18-27-10 |
| | | | | 65 | NE 5-27-11 | 155 | NW 18-27-10 |
| | | | | 66 | NW 5-27-11 | 156 | SE 18-27-10 |
| | | | | 67 | NE 9-27-11 | 157 | NE 6-28-10 |
| | | | | 68 | NW 9-27-11 | 158 | SE 6-28-10 |
| | | | | 69 | NE 13-27-11 | 159 | SE 21-28-10 |
| | | | | 70 | NW 13-27-11 | 160 | SW 21-28-10 |
| | | | | 71 | SE 13-27-11 | 161 | NW 24-28-10 |
| | | | | 72 | SW 13-27-11 | 162 | SW 24-28-10 |
| | | | | 73 | NE 21-27-11 | 163 | NE 29-28-10 |
| | | | | 74 | SE 21-27-11 | 164 | NW 31-28-10 |
| | | | | 75 | NE 28-27-11 | 165 | SE 34-28-10 |
| | | | | 76 | NW 28-27-11 | 166 | SW 34-28-10 |
| | | | | 77 | NE 2-28-11 | 167 | NE 13-29-10 |
| | | | | 78 | NW 2-28-11 | 168 | NW 13-29-10 |
| | | | | 79 | SE 2-28-11 | 169 | NE 20-29-10 |
| | | | | 80 | SW 2-28-11 | 170 | NW 20-29-10 |
| | | | | 81 | NE 5-28-11 | 171 | NW 28-29-10 |
| | | | | 82 | NW 5-28-11 | 172 | SW 28-29-10 |
| | | | | 83 | NE 7-28-11 | 173 | NW 32-29-10 |
| | | | | 84 | SE 7-28-11 | 174 | SW 32-29-10 |
| | | | | 85 | NW 8-28-11 | 175 | NE 12-21- 9 |
| | | | | 86 | SW 8-28-11 | 176 | SW 12-21- 9 |
| | | | | 87 | SW 13-28-11 | 177 | SE 20-21- 9 |
| | | | | 88 | SE 14-28-11 | 178 | NE 34-21- 9 |
| | | | | 89 | SW 14-28-11 | 179 | NW 34-21- 9 |
| | | | | 90 | NE 19-28-11 | 180 | SW 8-22- 9 |
| | | | | 91 | SE 19-28-11 | 181 | SE 14-22- 9 |
| | | | | 92 | NW 20-28-11 | 182 | SW 14-22- 9 |
| | | | | 93 | SW 20-28-11 | 183 | NE 24-22- 9 |
| | | | | 94 | NE 23-28-11 | 184 | NE 35-22- 9 |
| | | | | 95 | NW 23-28-11 | 185 | NE 14-23- 9 |
| | | | | 96 | NE 27-28-11 | 186 | NE 16-23- 9 |
| | | | | 97 | NW 27-28-11 | 187 | NE 21-23- 9 |
| | | | | 98 | SE 27-28-11 | 188 | SE 21-23- 9 |
| | | | | 99 | SW 27-28-11 | 189 | SE 27-23- 9 |
| | | | | 100 | SW 29 28-11 | 190 | SE 28-23- 9 |
| | | | | 101 | SE 30-28-11 | 191 | NE 5-24- 9 |
| | | | | 102 | NW 13-29-11 | 192 | SW 5-24- 9 |
| | | | | 103 | NW 17-29-11 | 193 | NE 8-24- 9 |
| | | | | 104 | SE 23-29-11 | 194 | SW 28-24- 9 |
| | | | | 105 | SW 23-29-11 | 195 | SW 30-24- 9 |
| | | | | 106 | NE 26-29-11 | 196 | SE 1-25- 9 |
| | | | | 107 | SE 27-29-11 | 197 | SW 1-25- 9 |
| | | | | 108 | NW 30-29-11 | 198 | NW 8-25- 9 |
| | | | | 109 | SE 30-29-11 | 199 | NW 28-25- 9 |
| | | | | 110 | SW 30-29-11 | 200 | NW 32-25- 9 |
| | | | | 111 | NE 1-20-10 | 201 | NE 3-26- 9 |
| | | | | 112 | SE 1-20-10 | 202 | NW 3-26- 9 |
| | | | | 113 | NE 12-20-10 | 203 | SE 7-26- 9 |
| | | | | 114 | SE 12-20-10 | 204 | SW 7-26- 9 |
| | | | | 115 | NE 13-20-10 | 205 | NE 10-26- 9 |
| | | | | 116 | NW 13-20-10 | 206 | NW 10-26- 9 |
| | | | | 117* | NE 21-20-10 | 207 | SE 10-26- 9 |
| | | | | 118* | NW 21-20-10 | 208 | NE 19-26- 9 |
| | | | | 119 | NW 25-20-10 | 209 | SW 19-26- 9 |
| | | | | 120 | SE 25-20-10 | 210 | SW 31-26- 9 |
| | | | | 121 | SE 6-21-10 | 211 | NW 36-26- 9 |
| | | | | 122 | SW 6-21-10 | 212 | NE 1-27- 9 |
| | | | | 123 | SE 7-21-10 | 213 | NW 1-27- 9 |
| | | | | 124 | NW 25-21-10 | 214 | NE 6-27- 9 |
| | | | | 125 | NE 26-21-10 | 215 | NW 6-27- 9 |
| | | | | 126 | NW 2-22-10 | 216 | NE 10-27- 9 |
| | | | | 127 | SE 3-22-10 | 217 | SE 10-27- 9 |
| | | | | 128 | NW 2-23-10 | 218 | SW 17-27- 9 |

## RELATION OF KAY COUNTY EXTENSION TO BURBANK FIELD




The Kay County Extension of the Great Burbank Field shown in its relation to the older part of the producing area. Shaded portions represent leases to be offered at the Osage sale, March 18 and 19.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 219 | NW 20-27- 9 | 236 | NW 19-29- 9 | 253 | SE 24-24- 8 | 270 | NE 35-26- 8 | 287 | NE 16-28- 8 | 294 | NE 13-29- 8 | **To Be Sold March 19, 1924, Schedule B** | | | |
| 220 | SW 22-27- 9 | 237 | SW 19-29- 9 | 254 | NE 25-24- 8 | 271 | NE 8-27- 8 | 288 | SE 16-28- 8 | 295 | NW 13-29- 8 | 317 | NW 22-22-12 | 332* | SW 15-28-12 |
| 221 | SE 24-27- 9 | 238 | NE 23-29- 9 | 255 | SW 4-25- 8 | 272 | NW 8-27- 8 | 289 | NE 19-28- 8 | 296 | NE 18-29- 8 | 318 | SW 22-22-12 | 333 | SE 16-28-12 |
| 222 | SW 24-27- 9 | 239 | SE 32-29- 9 | 256 | SE 6-25- 8 | 273 | NE 10-27- 8 | 290 | NW 21-28- 8 | 297 | SW 18-29- 8 | 319 | NE 29-22-12 | 334 | SE 17-28-12 |
| 223 | SW 27-27- 9 | 240 | NE 36-29- 9 | 257 | NE 7-25- 8 | 274 | SE 10-27- 8 | 291 | SW 21-28- 8 | 298 | SE 27-29- 8 | 320 | NW 29-22-12 | 335 | SW 17-28-12 |
| 224 | SE 28-27- 9 | 241 | NE 6-22- 8 | 258 | SW 21-25- 8 | 275 | SW 15-27- 8 | 292 | NE 32-28- 8 | 299 | SW 27-29- 8 | 321 | NW 4-27-12 | 336 | NE 21-28-12 |
| 225 | NE 35-27- 9 | 242 | SE 6-22- 8 | 259 | SE 35-25- 8 | 276 | NW 22-27- 8 | 293 | SE 32-28- 8 | 300 | NW 29-29- 8 | 322 | SW 4-27-12 | 337 | SE 21-28-12 |
| 226 | SE 35-27- 9 | 243 | SW 15-22- 8 | 260 | NE 26-25- 8 | 277 | NE 29-27- 8 | **To Be Sold March 18, 1924, Schedule A, West Side** | | | | 323 | NE 5-27-12 | 338* | NW 22-28-12 |
| 227 | NW 2-28- 9 | 244 | NW 22-22- 8 | 261 | SE 36-25- 8 | 278 | SE 29-27- 8 | | | | | 324 | NW 5-27-12 | 339* | SW 22-28-12 |
| 228 | SW 3-28- 9 | 245 | SE 2-23- 8 | 262 | NE 11-26- 8 | 279 | SW 29-27- 8 | 301 | NE 2-22- 7 | 309 | SW 13-27- 5 | 325 | SE 5-27-12 | 340 | NW 31 28-12 |
| 229 | NW 10-28- 9 | 246 | SW 2-23- 8 | 263 | NW 11-26- 8 | 280 | NE 1-28- 8 | 302 | NW 6-26- 7 | 310 | SE 14-27- 5 | 326* | SW 3-28-12 | 341 | SW 31-28-12 |
| 230 | SE 10-28- 9 | 247 | SE 27-23- 8 | 264 | SE 14-26- 8 | 281 | SW 1-28- 8 | 303 | NW 34-27- 7 | 311 | SW 14-27- 5 | 327 | SE 4-28-12 | 342 | NE 32-28-12 |
| 231 | SW 10-28- 9 | 248 | NW 6-24- 8 | 265 | SW 14-26- 8 | 282 | NE 3-28- 8 | 304 | SW 34-27- 7 | 312 | NW 6-23- 4 | 328 | SE 5-28-12 | 343 | NW 32-28-12 |
| 232 | NE 22-28- 9 | 249 | SE 6-24- 8 | 266 | NW 17-26- 8 | 283 | NW 4-28- 8 | 305 | NE 1-26- 6 | 313 | SW 6-23- 4 | 329 | SW 5-28-12 | 344 | SE 32-28-12 |
| 233 | NW 23-28- 9 | 250 | NW 7-24- 8 | 267 | NW 25-26- 8 | 284 | SW 4-28- 8 | 306 | SE 18-27- 6 | 314 | NW 22-25- 4 | 330 | NW 9-28-12 | 345 | SW 32-28-12 |
| 234 | NE 13-29- 9 | 251 | SW 17-24- 8 | 268 | SE 27-26- 8 | 285 | NE 11-28- 8 | 307 | SW 18-27- 6 | 315 | NE 1-23- 3 | 331 | SW 9-28-12 | 346 | NE 19-29-12 |
| 235 | SE 13-29- 9 | 252 | NE 20-24- 8 | 269 | NE 34-26- 8 | 286 | SE 12-28- 8 | 308 | SE 13-27- 5 | 316 | SE 1-23- 3 | (Continued from Page 72) | | | |

# REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

## GASOLINE AND NAPHTHA

| CHICAGO DIST. (Based on Group 3)— | Feb. 5 | | Jan. 29 | | Jan. 22 | |
|---|---|---|---|---|---|---|
| 50-52 450 end point (Naphtha) | .11¼ | .11½ | .10½ | .11 | .10½ | .10¾ |
| 56-58 450 end point | .11½ | .11¾ | .10¾ | .11 | .10½ | .10¾ |
| 58-60 437 end point (New Navy) | .11¾ | .12¼ | .11 | .11½ | .11¼ | .11½ |
| 60-62 400 end point | .13 | .13¼ | .12½ | .12¾ | .12½ | .12¾ |
| 64-66 375 end point | .14 | .14¼ | .13½ | .13¾ | .13¼ | .13½ |
| 68-70 360 end point | .15 | .15¼ | .14¼ | .14½ | .14 | .14½ |
| **OKLAHOMA (Group 3)—** | | | | | | |
| 50-52 450 end point (Naphtha) | .11½ | .11¾ | .10¾ | .11 | .10¾ | .11 |
| 56-58 450 end point | .11¾ | .12¼ | .11 | .11¼ | .11¼ | .11½ |
| 58-60 437 end point (New Navy) | .12¼ | .12½ | .11¼ | .11¾ | .11½ | .11¾ |
| 60-62 400 end point | .13¼ | .13½ | .12¼ | .12½ | .12½ | .12¾ |
| 64-66 375 end point | .14¼ | .14½ | .13¼ | .13¾ | .13½ | .14 |
| 68-70 350-365 end point | .15¼ | .15½ | .14 | .14¼ | .14¼ | .14½ |
| **KANSAS—** | | | | | | |
| 58-60 437 end point (New Navy) | .12½ | .12¾ | .11½ | .11¾ | .11¾ | .12 |
| **NORTH TEXAS—** | | | | | | |
| 48-52 450 end point (Naphtha) | .11 | .11½ | .10½ | .10¾ | .10¾ | .11 |
| 50-52 440 end point (Naphtha) | .11¼ | .11¾ | .10¾ | .11 | .11 | .11¼ |
| 56-58 450 end point | .11½ | .11¾ | .11 | .11¼ | .11¼ | .11½ |
| 58-60 437 end point (New Navy) | .12 | .12½ | .11¼ | .11¾ | .11¾ | .12 |
| 60-62 400 end point | .13 | .13½ | .12¼ | .12¾ | .12¾ | .13 |
| 64-66 390 end point | .14 | .14¼ | .13 | .13¼ | .13½ | .13¾ |
| 64-66 375 end point | .14¼ | .14½ | .13¼ | .13¾ | .13¾ | .14 |
| **NORTH LOUISIANA—** | | | | | | |
| 56-58 450 end point | .11½ | .11¾ | .11 | .11¼ | .11 | .11¼ |
| 58-60 437 end point (New Navy) | .11¾ | .12 | .11½ | .11¾ | .11½ | .11¾ |
| 60-62 400 end point | .13 | .13½ | .12½ | .12¾ | .12¾ | .13 |
| 64-66 375 end point | .14¼ | .14½ | .13¾ | .14 | .14 | .14½ |
| 64-66 390 end point | .14 | .14¼ | .13¼ | .13½ | .13¾ | .14 |
| **ARKANSAS—** | | | | | | |
| 58-60 450 end point | .12½ | .12¾ | .11¼ | .11½ | .11¼ | .11½ |
| 58-60 437 end point (New Navy) | .12¾ | .13 | .11½ | .11¾ | .11½ | .11¾ |
| 64-66 375 end point | .14 | .14½ | .13½ | .14 | .13½ | .14 |
| **ROCKY MOUNTAIN STATES—** | | | | | | |
| *58-60 437 end point (New Navy) | .13½ | | .12½ | | .12½ | |
| **PENNSYLVANIA—** | | | | | | |
| 52 Naphtha | .13¾ | | .13¾ | | .11 | |
| 54 Naphtha | .13⅞ | | .13⅞ | | .11 | |
| 56 Gasoline | .14 | | .14 | | .11½ | |
| 58 Gasoline | .15 | | .14½ | | .12½ | |
| 60 Gasoline | .15¾ | | .15 | | .13¼ | |
| 62 Gasoline | .16½ | | .16 | | .14 | |
| 64 Gasoline | .17½ | | .17 | | .15 | |
| 66 Gasoline | .18½ | | .18¼ | | .16½ | |
| 68-70 Gasoline | .19½ | | .18¾ | | .17½ | |

*Colorado points.

## NATURAL GASOLINE

| CHICAGO DIST. (Based on Group 3)— | Feb. 5 | | Jan. 29 | | Jan. 22 | |
|---|---|---|---|---|---|---|
| Grade A, 72-78, under 375 e.p., rec. 90% | .11 | .11½ | .10½ | .11 | .10½ | .11 |
| Grade B, 76-82, 375 end point, rec. 85% | .10½ | .10¾ | .10 | .10½ | .10¼ | .10¾ |
| Grade C, 80-88, 350 end point, rec. 78% | .09½ | .09¾ | .09 | .09¼ | .09 | .09¼ |
| **OKLAHOMA (Group 3)—** | | | | | | |
| Grade A, 72-78, under 375 e.p., rec. 90% | .11½ | .11¾ | .10½ | .11 | .10½ | .11¼ |
| Grade B, 76-82, 375 end point, rec. 85% | .10¾ | .11¼ | .09¾ | .10¼ | .09¾ | .10¼ |
| Grade C, 80-88, 350 end point, rec. 78% | .09¾ | .10¼ | .09 | .09¼ | .08¾ | .09¼ |
| Grade D, 88-92, 350 end point | .09¾ | .10¼ | .08¾ | .09¼ | .08¾ | .09¼ |
| **NORTH TEXAS—** | | | | | | |
| Grade A, 72-78, under 375 e.p., rec. 90% | .11¼ | .11½ | .10¼ | .10¾ | .10½ | .11 |
| Grade B, 76-82, 375 end point, rec. 85% | .10½ | .10¾ | .09½ | .10 | .09¾ | .10¼ |
| Grade C, 80-88, 350 end point, rec. 78% | .09½ | .09¾ | .08½ | .08¾ | .08¾ | .09 |
| **NORTH LOUISIANA—** | | | | | | |
| Grade B, 72-78, under 375 e.p., rec. 90% | .10¼ | .10½ | .10 | .10½ | .10 | .10½ |
| Grade C, 76-82, 375 end point, rec. 85% | .09¼ | .09½ | .09 | .09¼ | .09 | .09¼ |

## MOTOR NATURAL GASOLINE (BLEND)

| CHICAGO DIST. (Based on Group 3)— | Feb. 5 | | Jan. 29 | | Jan. 22 | |
|---|---|---|---|---|---|---|
| 58-62 437 end point | .11 | .11¼ | .10½ | .10¾ | .10¼ | .10¾ |
| 60-62 450 end point | .11 | .11¼ | .10½ | .10¾ | .10¼ | .10¾ |
| 64-66 450 end point | .11 | .11¼ | .10½ | .10¾ | .10½ | .11 |
| **OKLAHOMA (Group 3)—** | | | | | | |
| 60-62 450 end point | .11½ | .11¾ | .10½ | .11 | .11 | .11¼ |
| 64-66 437 end point | .11½ | .11¾ | .10½ | .11 | .11 | .11¼ |
| 68-70 430-435 end point | .11¼ | .11½ | .10½ | .11 | .11 | .11¼ |
| **NORTH TEXAS—** | | | | | | |
| 58-62 440 end point | .11¼ | .11½ | .10¾ | .11 | .11 | .11¼ |
| 58-60 450 end point | .11¼ | .11½ | .10¾ | .11 | .11 | .11¼ |
| **PENNSYLVANIA—** | | | | | | |
| *60-62 | .15 | | .14½ | | .13 | |
| *64-66 | .15 | | .14½ | | .13 | |
| *66-68 | .15 | | .14½ | | .13 | |
| *68-70 | .15 | | .14½ | | .13 | |

*At Sistersville, W. Va.

## BURNING OIL

| CHICAGO DIST. (Based on Group 3)— | Feb. 5 | | Jan. 29 | | Jan. 22 | |
|---|---|---|---|---|---|---|
| 41-43 water white Kerosene | .05¾ | .06¼ | .05¾ | .06 | .05¼ | .05½ |
| 42-44 water white Kerosene | .06 | .06¼ | .06 | .06¼ | .05½ | .05¾ |
| **OKLAHOMA (Group 3)—** | | | | | | |
| 41-43 water white Kerosene | .06 | .06¼ | .05¾ | .06 | .05½ | .05¾ |
| 42-43 water white Kerosene | .06¼ | .06½ | .05¾ | .06¼ | .05¾ | .06 |
| 41-43 prime white Kerosene | .05½ | .05¾ | .05¼ | .05½ | .05 | .05¼ |
| **KANSAS—** | | | | | | |
| 41-43 water white Kerosene | .06½ | .06¾ | .05¾ | .06¼ | .05¾ | .06¼ |
| **NORTH TEXAS—** | | | | | | |
| 41-43 water white Kerosene | .06¼ | .06½ | .05¾ | .06 | .05¾ | .06 |
| 41-43 prime white Kerosene | .05¾ | .06 | .05¼ | .05½ | .05¼ | .05½ |
| 40-42 prime white Kerosene | .05½ | .05¾ | .05¼ | .05½ | .05¼ | .05½ |
| 42-44 water white Kerosene | .06½ | .06¾ | .06 | .06¼ | .06 | .06¼ |
| **NORTH LOUISIANA—** | | | | | | |
| 41-43 prime white Kerosene | .05¾ | .06 | .05½ | .05¾ | .05½ | .05¾ |
| 42-44 water white Kerosene | .06 | .06¼ | .05¾ | .06¼ | .05¾ | .06 |
| **ARKANSAS—** | | | | | | |
| 41-43 water white Kerosene | .06¼ | .06½ | .05¾ | .06 | .05¾ | .06 |
| 42-44 water white Kerosene | .06½ | .06¾ | .06 | .06¼ | .06 | .06¼ |
| **ROCKY MOUNTAIN STATES—** | | | | | | |
| *40-42 water white Kerosene | .08¾ | | .08 | | .08 | |
| **PENNSYLVANIA—** | | | | | | |
| 43 Kerosene prime white | .07⅞ | | .07¾ | | .07 | |
| 45 Kerosene water white | .08 | | .07⅞ | | .07¾ | |
| 46 Kerosene water white | .08¾ | | .08¼ | | .08¼ | |
| 47 Kerosene water white | .09½ | | .09¼ | | .08¾ | |
| 36 Miners' Neutral | .09 | | .08¾ | | .08¼ | |

*Colorado points.

## FUEL OILS

| CHICAGO DIST. (Based on Group 3)— | Feb. 5 | | Jan. 29 | | Jan. 22 | |
|---|---|---|---|---|---|---|
| 24-26 Fuel Oil (sellers' cars, Group 3) | 1.20 | 1.25 | 1.10 | 1.20 | 1.05 | 1.10 |
| 22-24 (El Dorado) | 1.00 | 1.05 | 1.00 | 1.05 | .90 | .95 |
| 18-20 (Smackover) | .95 | 1.00 | .95 | 1.00 | .85 | .90 |
| 32-36 Gas Oil | .03⅜ | .03⅝ | .03¼ | .03½ | .03⅛ | .03⅜ |
| 38-40 Straw distillate | .04¼ | .04½ | .04¼ | .04½ | .04 | .04¼ |
| **KANSAS—** | | | | | | |
| 24-26 Fuel Oil | 1.30 | 1.35 | 1.20 | 1.30 | 1.25 | 1.30 |
| 32-36 Gas Oil | .03¾ | .04 | .03½ | .03¾ | .03⅛ | .03⅜ |
| 38-40 Distillate | .04¼ | .04½ | .04 | .04½ | .04 | .04¼ |
| **OKLAHOMA (Group 3)—** | | | | | | |
| 24-26 Fuel Oil (buyers' cars) | 1.20 | 1.25 | 1.10 | 1.15 | 1.10 | 1.15 |
| 24-26 Fuel Oil (sellers' cars) | 1.25 | 1.30 | 1.15 | 1.20 | 1.15 | 1.20 |
| 28-30 Fuel Oil (sellers' cars) | 1.30 | 1.35 | 1.25 | 1.30 | 1.25 | 1.30 |
| 32-36 Gas Oil | .03¾ | .03⅞ | .03⅜ | .03⅝ | .03¼ | .03½ |
| 38-40 Straw distillate | .04¼ | .04½ | .04 | .04¼ | .04 | .04¼ |
| **NORTH TEXAS—** | | | | | | |
| 24-26 Fuel Oil | 1.25 | 1.30 | 1.20 | 1.25 | 1.20 | 1.25 |
| 26-30 Fuel Oil | 1.30 | 1.35 | 1.25 | 1.30 | 1.30 | 1.35 |
| 32-36 Gas Oil | .03⅝ | .03¾ | .03½ | .03⅝ | .03⅜ | .03⅝ |
| 36-38 Gas Oil | .03¾ | .04 | .03⅝ | .03⅞ | .03½ | .03⅝ |
| 38-40 Straw distillate | .04¼ | .04½ | .04 | .04¼ | .04 | .04¼ |
| **NORTH LOUISIANA—** | | | | | | |
| 20-22 Fuel Oil | 1.05 | 1.15 | 1.10 | 1.15 | 1.10 | 1.15 |
| 32-36 Gas Oil | .03½ | .03⅝ | .03¼ | .03½ | .03¼ | .03½ |
| 38-40 light Straw distillate | .04 | .04¼ | .04 | .04¼ | .03¾ | .04 |
| **ARKANSAS—** | | | | | | |
| 38-40 Distillate | .04 | .04¼ | .04 | .04¼ | .04 | .04¼ |
| 32-36 Gas Oil | .03¾ | .04 | .03¾ | .04 | .03¾ | .04 |
| 22-26 Refinery Fuel Oil | 1.10 | 1.15 | 1.05 | 1.10 | 1.05 | 1.10 |
| **GULF COAST (South Texas)—** | | | | | | |
| Gas Oil | .04½ | .05 | .04¼ | .05 | .04½ | .05 |
| Fuel Oil | 1.60 | 1.75 | 1.60 | 1.75 | 1.60 | 1.75 |
| **PENNSYLVANIA—** | | | | | | |
| 30-34 Fuel Oil | .05½ | | .05¼ | | .05¼ | |
| 36-40 Fuel Oil | .06 | | .06 | | .05½ | |
| 34 Neutral | .10 | | .09¾ | | .09½ | |

## NEUTRAL OILS

| CHICAGO DIST. (Based on Group 3)— | Feb. 5 | | Jan. 29 | | Jan. 22 | |
|---|---|---|---|---|---|---|
| Pale Neutrals: | | | | | | |
| 70-80 vis., 2½ color, 20-25 cold test | .04¼ | .04½ | .04¼ | .04½ | .04½ | .04¾ |
| 100 vis., 2 color, 20-25 cold test | .06 | .06½ | .06 | .06½ | .06 | .06½ |
| 100 vis., 3 color, 20-25 cold test | .05½ | .06 | .05½ | .06 | .05½ | .06 |
| 150 vis., 3 color, 20-25 cold test | .11½ | .12 | .11½ | .12 | .11½ | .12 |
| 150 vis., 4 color, 20-25 cold test | .11 | .11½ | .11 | .11½ | .11 | .11½ |
| 180 vis., 4 color, 23-28 cold test | .13¼ | .13¾ | .13¼ | .13¾ | .13¼ | .13¾ |
| 180 vis., 3 color, 23-28 cold test | .13 | .13½ | .13 | .13½ | .13 | .13½ |
| 200 vis., 3 color, 23-28 cold test | .15 | .15½ | .15 | .15½ | .15 | .15½ |
| 200 vis., 4 color, 23-28 cold test | .14¼ | .14¾ | .14¼ | .14¾ | .14¼ | .14¾ |
| 200 vis., 3 color, 25-30 cold test | .15 | .15½ | .15 | .15½ | .15 | .15½ |
| 220 vis., 4 color, 25-30 cold test | .15¼ | .15¾ | .15¼ | .15¾ | .15¼ | .15¾ |
| 240 vis., 3 color, 25-30 cold test | .17 | .17½ | .17 | .17½ | .17 | .17½ |
| 240 vis., 4 color, 25-30 cold test | .16¼ | .16¾ | .16¼ | .16¾ | .16¼ | .16¾ |
| 280 vis., 3 color, 25-30 cold test | .19 | .20 | .19 | .20 | .19 | .20 |
| 280 vis., 4 color, 25-30 cold test | .18½ | .19 | .18½ | .19 | .18½ | .19 |
| Red Neutrals: | | | | | | |
| 180 vis., 5 color, 23-28 cold test | .11½ | .12 | .11½ | .12 | .11½ | .12 |
| 180 vis., 6 color, 23-28 cold test | .10¾ | .11¼ | .10¾ | .11¼ | .10¾ | .11¼ |
| 200 vis., 5 color, 23-28 cold test | .12½ | .13 | .12½ | .13 | .12½ | .13 |
| 200 vis., 6 color, 23-28 cold test | .11¾ | .12¼ | .11¾ | .12¼ | .11¾ | .12¼ |
| 220 vis., 5 color, 25-30 cold test | .13½ | .14 | .13½ | .14 | .13½ | .14 |
| 220 vis., 6 color, 25-30 cold test | .12¾ | .13¼ | .12¾ | .13¼ | .12¾ | .13¼ |
| 240 vis., 5 color, 25-30 cold test | .14½ | .15 | .14½ | .15 | .14½ | .15 |
| 240 vis., 6 color, 25-30 cold test | .13¾ | .14¼ | .13¾ | .14¼ | .13¾ | .14¼ |
| 280 vis., 5 color, 25-30 cold test | .17½ | .18 | .17½ | .18 | .17½ | .18 |
| 150-160 vis., 1 color, 40-50 cold test | .06½ | .07 | .06½ | .07 | .06½ | .07 |
| 190-200 dark green, 40-50 cold test | .05¼ | .05¾ | .05¼ | .05¾ | .05¼ | .05¾ |
| 600 steam refined | .16 | .16½ | .16 | .16½ | .16 | .16½ |
| 590-600 Bright Stock | .27 | .28 | .27 | .28 | .27 | .28 |
| 600-610 Bright Stock | .31 | .33 | .31 | .33 | .31 | .33 |
| Waxes: | | | | | | |
| 124-126 White Crude Scale Wax | .03¾ | .04 | .03¾ | .04 | .03¾ | .04 |

# REFINERY AND CRUDE PRICES

**Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields**

| PENNSYLVANIA— | Feb. 5 | Jan. 29 | Jan. 22 |
|---|---|---|---|
| 150, 3 color | .28¾ | .28½ | .27 |
| 180, 3 color | .32 | .31¼ | .29 |
| 190, 3 color | .33 | .32¾ | .31 |
| 220, 3 color | .35 | .35 | .34 |
| 600, steam refined | .21 | .19½ | .18¼ |
| 635, steam refined | .23½ | .21½ | .20 |
| 650, steam refined | .24 | .23½ | .22 |
| 600, Pennsylvania flash | .27½ | .27 | .26¼ |
| 630, Pennsylvania flash | .30½ | .30½ | .27½ |
| *350, E filtered | .22½ | .21 | .20 |
| *300, E filtered | .24¼ | .24¼ | .22½ |
| 600, E filtered | .23½ | .22½ | .21 |
| 600, D filtered | .30½ | .29 | .27 |
| 550, E filtered | .20 | .20 | .20 |
| 550, D filtered | .22 | .22 | .22 |
| Pennsylvania Bright Stock | .38 | .38 | .34½ |
| †122-124 White Crude Scale Wax | .04¼ | .04¼ | .04 |
| *122-124 White Crude Scale Wax | .04⅝ | .04¾ | .04⅛ |
| 300 Mineral Seal | .09 | .09 | .07½ |

*At Warren, Penn. †At New York City.

| GULF COAST (South Texas)— | Feb. 5 | Jan. 29 | Jan. 22 |
|---|---|---|---|
| Lubricating Stocks: | | | |
| Zero Black | .07½ .08 | .07½ .08 | .07½ .08 |
| No. 2 color, 100 vis., pale oil | .09½ .11 | .09½ .11 | .09½ .11 |
| No. 2 color, 150 vis., pale oil | .11½ .12½ | .11 .12 | .11 .12 |
| No. 3 color, 200 vis., pale oil | .13½ .14½ | .13 .14 | .13 .14 |
| No. 3½ color, 300 vis., pale oil | .16 .17 | .15½ .16½ | .15 .16 |
| No. 3½ color, 500 vis., pale oil | .18½ .19½ | .17½ .18½ | .17 .18 |
| No. 3½ color, 750 vis., pale oil | .24 .25 | .23 .24 | .22 .23 |
| No. 1½ color, 150 vis., filtered | .21 .23 | .21 .23 | .21 .23 |
| No. 2 color, 200 vis., pale, filtered | .23 .25 | .23 .25 | .23 .25 |
| No. 3 color, 300 vis., pale, filtered | .28 .29 | .28 .29 | .28 .29 |
| No. 3½ color, 500 vis., pale, filtered | .32 .33 | .32 .33 | .32 .33 |
| No. 3½ color, 750 vis., filtered | .38 .40 | .38 .40 | .38 .40 |
| No. 5 to 6 color, 200 vis., red oil | .11½ .12½ | .11 .12 | .11 .12 |
| No. 5 to 6 color, 300 vis., red oil | .14 .15 | .13½ .14½ | .13 .14 |
| No. 5 to 6 color, 500 vis., red oil | .16 .17 | .15½ .16½ | .15 .16 |
| No. 5 to 6 color, 750 vis., red oil | .22 .23 | .21 .22 | .21½ .23 |
| No. 5 to 6 color, 1200 vis., red oil | .24½ .26 | .24½ .26 | |

## NEW YORK DOMESTIC MARKET

| | Feb. 5 | Jan. 29 | Jan. 22 |
|---|---|---|---|
| Motor Gasoline: | | | |
| Greater New York, in steel barrels | .20 | .20 | .17½ |
| New York State outside Greater New York and New England, tank wagon | .20 | .20 | .17½ |
| New Jersey, tank wagon | .19½ | .19½ | .17½ |
| Gasoline in bulk, delivered at N. Y. | .16 | .12 | .12 |
| V. M. P. Naphtha, in steel barrels | .19 | .19 | .16½ |
| Kerosene: | | | |
| Greater New York, tank wagon | .15 | .15 | .15 |
| New York State (outside Greater New York and New England, tank wagon | .15 | .15 | .15 |
| New Jersey tank wagon | .14 | .14 | .14 |
| Lubricating Oil (Industrial) at refinery: | | | |
| Bayonne, N. J.: | | | |
| Cylinder, extra light filtered, in barrels | .40½ | .37½ | .37½ |
| Cylinder, light filtered, in barrels | .36½ | .32½ | .32½ |
| Cylinder, Bright Stock | .48 | .44 | .44 |
| Cylinder, steam refined (600) | .26½ | .22½ | .22½ |
| Black, in bulk | .13½ | .09½ | .09½ |
| Bloomless, white, 30-31 gravity, 170 vis. | .47 | .43 | .43 |
| Bloomless, 885 specific gravity | .14½ | .10½ | .10½ |
| Red Paraffin: | | | |
| 170 viscosity | .20 | .18 | .18 |
| 212 viscosity | .22 | .20 | .20 |
| 265 viscosity | .24 | .22 | .22 |
| 295 viscosity | .27 | .25 | .25 |
| Paraffin, 903 specific gravity | .24½ | .22½ | .22½ |
| *Fuel Oil: | | | |
| Bunker Oil, 14 plus, delivered in barges, bbl. | 1.60 | 1.45 | 1.45 |
| Diesel Oil, at refinery, gallon | .03¾ | .03¾ | .03¾ |
| Furnace Oil, tank wagon, gallon | .10 | .10 | .10 |
| Gas Oil, delivered in New York | .04¼ | .04¼ | .04¼ |
| Wax, fully refined: | | | |
| 120-122 a.m.p. | .04½ | .04 | .04 |
| 125-127 a.m.p. | .04¾ | .04¼ | .04¼ |
| 130-132 a.m.p. | .05 | .04¾ | .04¾ |
| 135-137 a.m.p. | .05½ | .05⅝ | .05⅝ |

*Lighterage, 6.5c a barrel extra.

## NEW YORK EXPORT PRICES

| | Feb. 5 | Jan. 29 | Jan. 22 |
|---|---|---|---|
| Motor Gasoline, in cases, gallon | .27.4 | .27.4 | .26.4 |
| Motor Gasoline, U. S. Navy, spec. gallon | .13.5 | .13.5 | .12.5 |
| Naphtha, 60° F., 59-61 spec. grav. | .15.0 | .15.0 | .14.0 |
| Naphtha, 60° F., 63-66 spec. grav. | .17.0 | .17.0 | .16.0 |
| Naphtha, 60° F., 66-68 spec. grav. | .18.5 | .18.5 | .17.5 |
| Kerosene: | | | |
| Standard white, in bulk, gallon | .07 | .07 | .07 |
| Standard white, in barrels, gallon | .14 | .14 | .14 |
| Standard white, in cases, gallon | .17.15 | .17.15 | .17.15 |
| Water white, in cases, gallon | .08 | .08 | .08 |
| Water white, in barrels, gallon | .15 | .15 | .15 |
| Water white, in cases, gallon | .18.5 | .18.5 | .18.5 |

## CRUDE OIL PRICES

**January 30.—Joseph Seep Purchasing Agency advanced all grades of Pennsylvania crude 25 cents, Somerset crudes, medium and light, 15 cents.**

**January 30.—Indian Refining Co. advanced Western Kentucky light and heavy crudes 15 cents. Paragon Development Co. advanced Warren, Simpson, Cumberland and Monroe County, (Kentucky) crudes 15 cents.**

**February 2.—Prairie Oil & Gas Co. announced a five-gravity schedule for Oklahoma, Kansas and North Texas crudes with a price advance of from 15 to 25 cents on all schedules above 30 degrees gravity. Changes met by other purchasing companies. Magnolia Petroleum Co. for the same area advanced its five-gravity schedule from 15 to 25 cents. Same company advanced Corsicana heavy and light and Mexia crudes 25 cents. The Texas Co. advanced Currie crude to $2.**

**February 4.—Ohio Oil Co. advanced Lima, Indiana, Illinois, Princeton, Plymouth, Waterloo and Wooster crudes 20 cents. Midwest Refining Co. advanced Salt Creek crude 25 cents. Canadian crude advanced 20 cents.**

**February 5.—Standard Oil Co. of California advanced California crudes, all fields, from 15 to 39 cents. Ohio Oil Co. advanced Elk Basin, Grass Creek light, Big Muddy, Rock Creek, Mule Creek, Lance Creek and Sunburst crudes 25 cents. Cat Creek advanced 25 cents.**

**February 6.—Standard Oil Co. of Louisiana advanced all grades of North Louisiana and Arkansas crudes 20 cents except Bellevue, which was advanced 25 cents.**

| Arkansas and North Louisiana | |
|---|---|
| Caddo, 38° and above | $1.70 |
| 35° to 37.9° | 1.60 |
| 32° to 34.9° | 1.50 |
| Below 32° | 1.35 |
| Homer, 35° and above | 1.70 |
| 33° to 34.9° | 1.60 |
| 31° to 32.9° | 1.50 |
| Below 31° | 1.35 |
| Haynesville, 33° and above | 1.60 |
| Below 33° | 1.50 |
| El Dorado, 33° and above | 1.70 |
| Below 33° | 1.60 |
| Bull Bayou, 38° and above | 1.65 |
| 35° to 37.9° | 1.50 |
| 32° to 34.9° | 1.35 |
| De Soto | 1.70 |
| Crichton | 1.50 |
| Bellevue | 1.55 |
| Smackover, 26° and above | 1.35 |
| 25° to 25.9° | 1.20 |
| 24° to 24.9° | 1.10 |
| Below 24° | 1.00 |
| *Stephens, Ark.: | |
| Below 23° | .80 |
| 23° to 25.9° | 1.00 |
| 26° to 27.9° | 1.15 |
| 28° to 31° | 1.20 |

*Posted by Atlantic Oil Producing Co.

| Wyoming and Montana | |
|---|---|
| Rock Creek, (Wyo.) | $1.55 |
| Salt Creek | 1.45 |
| Big Muddy | 1.35 |
| Mule Creek | .95 |
| Grass Creek (light) | 1.80 |
| Elk Basin | 1.80 |
| Lance Creek | 1.75 |
| Osage | 1.50 |
| Cat Creek, (Mont.) | 1.80 |
| Sunburst, (Mont.) | .95 |
| Greybull and Torchlight | 1.40 |
| Hamilton Dome | .92½ |
| Lander and Lost Soldier based on contracts covering entire production of fields. | |
| **Oklahoma, Kansas, North and Central Texas** | |
| Corsicana Light | $1.85 |
| Corsicana Heavy | 1.00 |
| Mexia | 1.85 |
| Currie | 2.00 |
| Powell | 1.85 |
| Thrall | 1.00 |
| Prairie Oil & Gas Co. and other major purchasing companies except as noted below: | |
| Below 30° | $1.15 |
| 30° to 32.9° | 1.30 |
| 33° to 35.9° | 1.60 |
| 36° to 38.9° | 1.85 |
| 39° and above | 2.00 |
| Magnolia Petroleum Co.: | |
| Below 28° | 1.00 |
| 28° to 30.9° | 1.15 |
| 31° to 32.9° | 1.30 |
| 33° and above, same as Prairie. | |
| **Gulf Coast** | |
| Gulf Pipe Line Co., Goose Creek Hull, Sour Lake, Batson, Saratoga, Spindletop, Orange, Vinton, Edgerly, Jennings | $1.65 |
| Grade "B," Pierce Junction, Blue Ridge | 1.40 |
| The Sun Pipe Line Co., Grade "A," Humble, Hull, Goose Creek, Orange, Spindletop, Saratoga, Batson, Dayton, Sour Lake | 1.65 |
| Grade "B," Blue Ridge, Pierce Junction | 1.40 |
| Texas Pipe Line Co., Humble, West Columbia, Orange, Sour Lake, Saratoga, Batson, Vinton, Jennings, Markham | 1.65 |
| Sinclair Pipe Line Co., West Columbia, Damon Mound | 1.65 |
| Luling and Laredo | 1.00 |
| Milam County | 1.35 |
| **California** | |
| 14° to 19.9° | $1.00 |
| 20° to 20.9° | 1.01 |
| 21° to 21.9° | 1.02 |
| 22° to 22.9° | 1.03 |
| 23° to 23.9° | 1.05 |
| 24° to 24.9° | 1.07 |
| 25° to 25.9° | 1.10 |
| 26° to 26.9° | 1.13 |
| 27° to 27.9° | 1.16 |
| 28° to 28.9° | 1.19 |
| 29° to 29.9° | 1.22 |
| 30° to 30.9° | 1.25 |
| 31° to 31.9° | 1.28 |
| 32° to 32.9° | 1.31 |
| 33° to 33.9° | 1.34 |
| 34° to 34.9° | 1.37 |
| 35° gravity and above | 1.40 |
| **Eastern States** | |
| Penna Grade Oil in New York Transit Lines | $4.50 |
| Bradford District Oil in National Transit Lines | 4.50 |
| Penna Grade Oil in National Transit Lines | 4.00 |
| Penna Grade Oil in Southwest Pa. Pipe Line Lines | 4.00 |
| Penna Grade Oil in Eureka Pipe Line Lines | 4.00 |
| Penna Grade Oil in Buckeye Pipe Line Lines | 4.00 |
| Cabell Grade Oil in Eureka Pipe Line Lines | 2.05 |
| Corning Grade Oil in Buckeye Pipe Line Lines | 1.80 |
| Somerset Medium Oil in Cumberland Pipe Line Lines | 2.15 |
| Simerset Light Oil in Cumberland Pipe Line Lines | 2.35 |
| Ragland Grade Oil in Cumberland Pipe Line Lines | 1.00 |
| Lima | $2.13 |
| Wooster | 2.00 |
| Illinois | 1.92 |
| Indiana | 1.93 |
| Princeton | 1.92 |
| Plymouth | 1.30 |
| Waterloo | 1.40 |
| †Petrolia, Canada | 2,53 |
| †Oil Springs, Canada | 2.60 |
| Western Kentucky (light), (Indian Refining Co.) | 2.21 |
| Western Kentucky (heavy), (Indian Refining Co.) | 2.01 |
| Warren & Simpson Counties, (Ky.) (Paragon Development Co.) | 2.15 |
| Cumberland and Monroe Counties (Ky.), (Paragon Dev. Co.) | 2.35 |

†Plus Government bounty of 52*c.

| Mexican Crude | |
|---|---|
| *Tuxpam (f. o. b. Mexican ports) | $ .80 |
| †Panuco (f. o. b. Mexican ports) | .65 |
| Tuxpam (New York | 1.31 |
| Panuco (New York) | 1.06 |

*Plus 26.69c tax. †Plus 15.58c tax. Prices based on contracts.

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MEMBER AUDIT BUREAU OF CIRCULATION


## OIL AN EXCEPTION

Those familiar with the viscissitudes of the oil industry have been amused by efforts of professional prognosticators to predict the course of oil in 1924 based on theories applied to other businesses. If these prophets knew anything about oil they would know it is a business peculiar to itself, in regard to its fluctuations in supply which no man can foresee. The futility of attempting to forecast the future of oil was unpleasantly impressed upon many of the most prominent men in the industry by the overproduction of 1923 reducing their predictions to absurdity.

In the face of that demonstration how ridiculous it is for a man who knows nothing of the oil business to pose as an instructor in what may be expected by oil men this year! Last year showed the rest of the country could be prosperous yet the oil industry be in the greatest depression in its history because of conditions affecting it alone. It is just as true that a scarcity of oil would give the oil industry exceptional prosperity though other businesses might be only marking time.

These facts known to everyone in the oil business expose the utter folly of attempts to forecast its trend by those who fail to grasp its fundamentals. Only the unthinking or uninformed can be misled by theories so squarely opposed to actual conditions.

Far from there being any indication adverse to the industry in the present outlook the prospects never were better. It is not necessary to venture prophesy; but merely to examine existing conditions. Consumption is running ahead of production, which means that stocks will be depleted. The immediate business is to find production to keep pace with consumption. The only danger could be a duplication of last year's overproduction caused by the simultaneous development of seven flush fields. There is no sign of even one such field today. It is contrary to all probability that the phenomenal combination of 1923 will ever be repeated. Nothing like it was found in the 64 years of the history of oil. And nothing less can prevent 1924 being a record year for activity and prosperity in the oil industry.

## HOW OIL PROMOTES PROSPERITY

Oil operators spent more than $500,000,000 last year drilling the 24,438 holes put down in the hope of finding oil.

This half billion investment is but a part of the oil industry's contribution to the business of the country. It takes no account of the money paid for leases, for the geological and legal surveys and explorations preliminary to the actual leasing or for the actual recovery of oil after it is found.

We are accustomed to think of the importance of the industry to the nation in supplying its products, but few, even within the industry, stop to think of the oil business as a customer of hundreds of other industries whose prosperity is to a great extent due to goods or services required by the oil industry.

We are familiar with the thought that the automotive industry rests upon petroleum but we forget that the petroleum industry is probably the motor manufacturers' largest customer for trucks. Railroads are turning increasingly to fuel oil but petroleum products and oil field and refinery supplies furnish the transportation companies with an important portion of their revenue.

Oil country goods are a valuable part of the business of the steel industry which, besides, competes for the business of tank car builders, storage tank manufacturers and the great machine companies who supply the petroleum industry in field and factory. Electrical manufacturing companies, engine builders, boiler makers, rope and cable makers, paint manufacturers, building and construction companies, glass makers, tinplate mills, pump builders, manufacturers of tools and fittings, chains, barrels, packing and belting, wire, poles, chemicals and countless other industries are directly and deeply interested in the prosperity of the oil industry.

Besides the half billion spent by oil men on drilling alone in 1923, which was less than in 1922 and probably much less than will be drilled in 1924, account should also be taken of the petroleum industry's more than half billion investment in its 55,000 miles of pipe lines; an investment of more than two billions in the 550 refineries in the United States; of two hundred millions in 137,500 tank cars, and a quarter of a billion, at least in the fleet of 325 tankers which carry oil to or from our shores.

Think what the expenditure of all that money has meant in furnishing work to American industries and the resultant stimulus to general prosperity from its disbursement among the public.

The enterprise of the oil industry has built whole towns in hundreds of places throughout the country. Take Tulsa for example, a city of 120,000, whose marvelous growth and substantial progress is unmatched anywhere in the world, the veritable metropolis of oil, a great city whose entire population draws its livelihood from petroleum or from those engaged in the oil business. What is true of Tulsa is true in measure of the development of entire States in the Mid-Continent. Oil put Oklahoma on the map; it is making Texas prosperous and has brought wealth and progress to Louisiana and Arkansas. In the past year it gave California an experience that made the boom days of '49 seem tame in comparison.

The importance of oil, great as it is, ranking second in value among the nation's mineral products, and second in value of products among the manufacturing industries of the country, is thus vastly larger than its own figures show. It has not only made possible and thereby virtually created the automobile industry but has immeasurably increased the business of the industries which supply the motor manufacturers with their material or parts; the steel industry, lumber, rubber, glass, electrical equipment, leather and the makers of numberless accessories, etc. The wholesale value of the cars and trucks produced last year is put at $2,500,000,000, value of tire production $760,000,000, value of accessories and parts $1,310,000,000.

Consider, too, how much the oil industry has contributed to agricultural production through gasoline and kerosene trucks and tractors. There are 4,250,000 cars and trucks on American farms, there because of the production of gasoline, immensely augmenting the productivity of agricultural effort. The whole country, in fact the entire world, has benefited.

Take almost any industry or business which is today capable of doing double or treble the work possible before gasoline accelerated transportation and delivery and calculate how much the oil industry has figured in present day prosperity enjoyed by all.

And to keep this going, to find and furnish the motive power upon which directly or indirectly these industries and enterprises so largely depend oil producers each year put more than a half billion dollars in the ground, not with the confidence of the farmer that he shall reap where he sowed, or of the ore or coal miner that what he seeks is there, but in little more than a hope of striking oil. The risk of a dry hole is indicated by the figures for 1923, when about one hole in four proveddry, meaning that about one-fourth of the money spent in drilling last year was a total loss, save for what recovery of material the larger operators effected.

# DRESSER STEEL PIPE COUPLINGS

Built along heavy, rugged lines, DRESSER STEEL PIPE COUPLINGS are noted for their strength and flexibility. The middle rings are hammer-welded and the flanges have no weak points or welds to separate. They are regularly equipped with heavy section standard gasoline resisting rubbers.

The first DRESSER line, laid more than thirty years ago, has been in continuous service and is perfectly tight, as it was when installed. Each succeeding installation has furnished additional proof of the high efficiency and permanency of DRESSER COUPLINGS.

**S. R. DRESSER MANUFACTURING CO.**
**Bradford, Penna.**

*The Standard Joint*

**DRESSER-COUPLINGS-DOMINATE**

# Oil Securities Ascend To New Levels

## Issues of California Companies Actively Traded in and Hold Strong. Nebraska Active Among Standard Oil Group

By N. O. Fanning
*Room 525 No. 30 Church St., New York*

NEW YORK, Feb. 4.—Oil securities bounded to new high levels during the past week. Features of the list were Pacific Oil, Associated Oil, Shell Union Oil, common, Mexican Seaboard Oil, Mutual Oil and Continental Oil, all of which moved into new high ground and were exceedingly active.

Pacific Oil deserves special mention, because this stock has apparently been under constant accumulation practically since the fall of 1923. From a high at the early part of the year around 52 it dropped to a low of 31½ in the summer, and from that figure advanced steadily, reaching a new high during the past week of 57¼. Although doubtless the speculative account in this stock is large, much of the buying is said to have been for the account of the Standard Oil Co. of California, which has had a stock interest in Pacific Oil for several years.

Issues of other California oil companies have been actively traded in and have held strong, indicating belief in financial circles that these concerns as a group are worthy of special attention. Shell Union Oil advanced to 20 on very heavy trading, while General Petroleum stock was quite strong, advancing to above 40.

Among the Standard Oil issues, Standard of Nebraska was particularly active and strong, while the group as a whole, outside this one, was featureless.

At the close of the week profit taking developed and the oil list as a whole reacted from the high levels. This was to be expected after the continuous advance in oil securities during the past three months. The Oil and Gas Journal's average reached a new high on January 29 of 55.90, after a continuous rise from around 41 last September.

### Superior Oil Financing

The Superior Oil Corp. has announced that holders of its capital stock of record at the close of business February 13, 1924, will be offered, subject to approval of stockholders, right to subscribe on or before February 28, 1924, at $95 per bond, for five-year first mortgage 7 per cent sinking fund bonds, due February 15, 1929, to the extent of $107.85 par value of bonds for each 100 shares of stock held.

The Cumberland Pipe Line Co. has declared a dividend of $3 per share, payable March 15, to stockholders of record February 29. This is a departure from the company's usual custom, dividends usually being payable annually, in December. In December, 1923, the company paid a dividend of $10 per share. If the new basis for dividends is quarterly, the one just declared indicates that the stock is on a 12 per cent annual basis. Inasmuch as the company in 1922 declared a 100 per cent stock dividend, the 12 per cent rate is equivalent to double the amount paid on the old stock.

### Independent Oil & Gas

The Independent Oil & Gas Co. reports for 1923 net income of $776,195, equivalent to $1.72 per share on the outstanding stock after deducting expenses, taxes, interest, etc. Gross sales and earnings from operations were $1,433,727. Gross production from the properties in 1923 was $1,059,583 barrels, and the net production was 676,242 barrels. Number of wells completed was 54, of which 28 were oil wells, 6 were gassers and the remainder dry holes.

Two new directors, to represent the Morgan interests, it is reported, will be added to the board of directors of the Marland Oil Co. at the next quarterly directors' meeting in March. One of the new members is expected to be the president of a large New York banking institution.

With the consummation of the sale of 300,000 shares of Marland treasury stock to J. P. Morgan & Co., at $30 per share, Marland Oil Co. raises $9,000,000 new cash capital. It previously had something in excess of $3,000,000 cash so that with the new money it will be able to pay off its bank loans in entirety and will have between $5,000,000 and $6,000,000 in cash.

Official notice has been given to holders of stock purchase warrants under Marland Oil's series A and series B bonds, of their right to buy 25 shares of stock for each $1,000 bond warrant at $30 a share, this right to expire on April 1, next. Originally the warrants carried privilege of buying stock at $40 a share but on account of the sale to J. P. Morgan & Co., warrant holders are given the right to purchase at the same time. Warrants outstanding represent subscription rights to a little over 100,000 shares and if they are all exercised, Marland will receive $3,000,000 additional cash, giving it $9,000,000 cash after paying back bonus.

Marland has approximately 4,000,000 barrels of high gravity Tonkawa crude oil in storage, the best grade in the Mid-Continent Field with present price of $1.75 a barrel. Advance in price of 30 cents a barrel since January 1 on this grade of crude has more than balanced inventory reduction shown at the end of 1923 because of price declines last year.

The directors of the Standard Oil Co. of New York declared the regular quarterly dividend of 35 cents a share yesterday, payable March 15, to stockholders of record February 21. The directors had been expected to increase the quarterly dividend to 50 cents, placing the stock on a $2 annual dividend basis.

### Pipe Line Reports

For year ended December 31, 1923, Southern Pipe Line Co. reports profits of $547,707, equivalent to $5.47 a share earned on $10,000,000 capital stock. This compares with $982,239, or $9.82 a share in 1922.

Report of South West Pennsylvania Pipe Lines, for the year ended December 31, 1923, shows profits of $268,484, equivalent to $7.67 a share earned on the $3,500,000 capital stock, compared with $315,871, or $9.02 a share, in 1922.

Report of the Eureka Pipe Line Co. for the year ended December 31, 1923, shows profits of $324,507, equivalent to $6.49 a share earned on the $5,000,000 capital stock, compared with $632,003, or $12.65 a share in 1922.

The Vacuum Oil Co. declared an extra dividend of 25 cents in addition to the regular quarterly dividend of 50 cents. Both are payable March 20 to stockholders of record March 5.

### NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

| No. | Stock— | Par | §Dividend Rate | Closing Quotations Feb. 5 | Jan. 29 | Range High | 1923 Low |
|---|---|---|---|---|---|---|---|
| 1. | Associated Oil | 25 | 6 | 34 | 33 | 29¼ | 24½ |
| 2. | Atlantic Refining, common | 100 | 4 | 136½ | 136 | 160 | 98¾ |
| 3. | Barnsdall "A" | 25 | .. | 18½ | 17¼ | 35 | 9¾ |
| 4. | Caddo Central Oil | .. | .. | 2¾ | 3⅜ | 9¼ | 1½ |
| 5. | California Petroleum, common | 25 | 7 | 28¾ | 27¼ | 29⅛ | 17⅛ |
| 6. | Cosden & Co., common | .. | .. | 39¾ | 37 | 62¼ | 22¾ |
| 7. | General American Tank | .. | †3 | *45 | 45 | 71⅞ | 40 |
| 8. | General Asphalt | 100 | .. | 45⅝ | 43¼ | 54 | 23 |
| 9. | Houston Oil | 100 | .. | 81⅝ | 72⅝ | 78 | 40¾ |
| 10. | Independent Oil & Gas | 10 | .. | 8¼ | 8¼ | 11¼ | 3⅜ |
| 11. | Indiahoma Refining | 25 | .. | 1 | *2⅜ | 9 | 1¼ |
| 12. | Indian Refining | 10 | .. | 4⅜ | 5¼ | 8¼ | 4 |
| 13. | Invincible Oil | 50 | .. | 16⅝ | 15½ | 19¼ | 7⅛ |
| 14. | Maracaibo | .. | .. | 35 | 34⅝ | 28¼ | 16 |
| 15. | Marland | .. | .. | 41½ | 38⅝ | 59⅝ | 18½ |
| 16. | Mexican Seaboard | .. | .. | 23½ | 18½ | 19¾ | 5¾ |
| 17. | Middle States Oil | 10 | .. | 6½ | 6 | 12¼ | 3½ |
| 18. | National Supply | 50 | 6 | 71¾ | 70⅞ | 68 | 54 |
| 19. | Pacific Oil | .. | †2 | 57¾ | 55 | 52½ | 31½ |
| 20. | Pan-American, common | 50 | 16 | 48⅝ | 48 | 93½ | 53 |
| 21. | Panhandle Prod. & Ref. | .. | .. | 3½ | 3½ | 6¼ | 1¼ |
| 22. | Phillips Petroleum | .. | †2 | 42 | 39⅞ | 69⅝ | 19⅝ |
| 23. | Pierce Oil, common | 25 | .. | 3½ | 3½ | 6 | 1½ |
| 24. | Producers & Refiners | 50 | .. | 41¼ | 39¼ | 58¼ | 17⅛ |
| 25. | Pure Oil Co., common | 25 | 6 | 25⅝ | 24¼ | 32 | 16⅝ |
| 26. | Royal Dutch, N. Y., sh | 13.40 | 2.62 | 58½ | 55 | 58⅛ | 40½ |
| 27. | Shell Transport | 10 | x92½ | 41 | 36½ | 41¾ | 29½ |
| 28. | Shell Union, common | .. | †1 | 19⅝ | 18⅝ | 19¼ | 12⅜ |
| 29. | Simms Pet. | 10 | .. | 13⅛ | 12¾ | 16⅝ | 6½ |
| 30. | Sinclair Consolidated, common | .. | †2 | 24 | 22⅞ | 39⅞ | 16 |
| 31. | Skelly Oil | 25 | .. | 28⅝ | 27¾ | 35 | 12⅛ |
| 32. | Standard of California | 25 | 8 | 68 | 67½ | 64½ | 47½ |
| 33. | Standard Oil of N. J. | 25 | 4 | 42 | 41¾ | 44¼ | 30⅝ |
| 34. | Standard of New Jersey, pfd. | 100 | 7 | 117⅜ | 118⅛ | 118¼ | 114⅝ |
| 35. | Superior Oil | .. | .. | 3¼ | 3⅝ | 6⅞ | 2 |
| 36. | The Texas Co. | 25 | 12 | 46½ | 44⅝ | 52⅝ | 34⅝ |
| 37. | Texas & Pacific Coal & Oil | 10 | .. | 14⅝ | 22 | 24⅞ | 5½ |
| 38. | Tide Water Oil | 100 | 4 | 145⅝ | 141½ | 144 | 94 |
| 39. | Transcontinental | .. | .. | 5½ | *5½ | 14½ | 1¼ |
| 40. | Union Tank, preferred | 100 | 7 | *107 | 107¾ | 114 | 106 |
| 41. | White Eagle Oil & Ref. | .. | 2¾ | 28⅜ | 26⅝ | 30⅝ | 20⅛ |
| | **Standard Oil Stocks** | | | | | | |
| 42. | Anglo-American Oil | £1 | 20 | 17⅛ | 15⅝ | 19¾ | 13⅛ |
| 43. | Borne Scrymser | 100 | 12 | 168 | 155 | 153 | 110 |
| 44. | Buckeye Pipe Line | 50 | 14 | 72½ | 82 | 94 | 69 |
| 45. | Chesebrough Mfng., com. | 100 | 14 | 345 | 320 | 340 | 205 |
| 46. | Continental Oil | 25 | 8 | 51¼ | 53¼ | 50 | 32½ |
| 47. | Crescent Pipe Line | 25 | .. | *18½ | 18¼ | 25 | 15 |
| 48. | Cumberland Pipe Line | 100 | 10 | 130 | 120 | 117 | 80 |
| 49. | Eureka Pipe Line | 100 | 8 | 99 | 105 | 117¼ | 87 |
| 50. | Galena-Signal, common | 100 | 4 | 68½ | 68 | 78 | 55 |
| 51. | Humble Oil & Ref. | 25 | 4.8 | 42⅝ | 39½ | 41 | 28¼ |
| 52. | Illinois Pipe Line | 100 | 16 | 148 | 156 | 171 | 115 |
| 53. | Imperial Oil, Ltd. | 25 | 16 | 116½ | 116 | 123 | 92 |
| 54. | Indiana Pipe Line | 50 | 16 | 90 | 99 | 103 | 81 |
| 55. | Intl. Pet. Co. | .. | x50 | 21⅞ | 21½ | 24¾ | 13¼ |
| 56. | Magnolia Pet. | 100 | 4.5 | 153½ | 151 | 166 | 123 |
| 57. | National Transit | 12.50 | 16 | *25 | 25¼ | 29 | 19½ |
| 58. | New York Transit | 100 | 10 | 89⅛ | *94 | 138 | 70 |
| 59. | Northern Pipe Line | 100 | 25 | 103 | 105 | 111 | 96 |
| 60. | Ohio Oil Co. | 25 | 4 | 76⅛ | 76½ | 85⅝ | 48⅜ |
| 61. | Penn-Mex Fuel | 25 | .. | 38½ | *36 | 45 | 10½ |
| 62. | Prairie Oil & Gas | 100 | 8 | 258 | 226 | 272 | 152 |
| 63. | Prairie Pipe Line | 100 | 8 | 109 | 109½ | 117 | 93 |
| 64. | Solar Refining Co. | 100 | 15 | 218½ | 220 | 212 | 161 |
| 65. | Southern Pipe Line | 100 | 16 | 97 | 99¼ | 116 | 87 |
| 66. | South Penn Oil | 100 | .. | 165 | 165 | 196 | 100 |
| 67. | South West Pa. Line | 100 | 8 | 87 | 86 | 89 | 66 |
| 68. | Standard of Indiana | 25 | 10 | 67⅝ | 67⅝ | 69⅞ | 49⅛ |
| 69. | Standard of Kansas | 25 | 8 | 48½ | 49½ | 56¼ | 36½ |
| 70. | Sandard of Kentucky | 25 | 16 | 114½ | 115½ | 109½ | 76 |
| 71. | Standard of Nebraska | 100 | 20 | 234 | 237 | 280 | 186 |
| 72. | Standard Oil of N. Y. | 25 | 5.6 | 47 | 47⅜ | 49¾ | 35½ |
| 73. | Standard of Ohio, common | 100 | 10 | *323 | 330 | 320 | 270 |
| 74. | Swan & Finch | 100 | .. | 46 | 45 | 38 | 21½ |
| 75. | Vacuum Oil | 25 | 10 | 67¾ | 63⅞ | 85½ | 40 |
| 76. | Washington Oil | 10 | .. | 27 | *25 | 28 | 20¼ |
| | **Miscellaneous Stocks** | | | | | | |
| 77. | Cities Service, banker's shares | .. | ‡21 | 15⅞ | 15⅞ | 18½ | 12⅜ |
| 78. | Gulf Oil Corp. of Pa. | 25 | 6 | 64¼ | 63½ | 68¼ | 46⅝ |

*Bid, no sales. †In dollars. ‡6 per cent in cash and 15 per cent stock dividend declared; now being paid in scrip. §The figures carried in this column are kept up-to-date as far as possible but are not guaranteed. xCents per share.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Sock Exchange weekly was as follows:

| | | | | | |
|---|---|---|---|---|---|
| Feb. 5 | 57.46 | Dec. 30 | 53.77 | Nov. 27 | 47.74 |
| Jan. 29 | 55.40 | Dec. 24 | 52.28 | Nov. 20 | 45.26 |
| Jan. 22 | 53.90 | Dec. 18 | 51.20 | Nov. 13 | 43.84 |
| Jan. 15 | 53.70 | Dec. 11 | 49.27 | Nov. 5 | 42.60 |
| Jan. 8 | 52.68 | Dec. 4 | 48.66 | Oct. 30 | 41.66 |

### DEMOLISHING ROAD SIGNS

The work of demolishing roadside advertising signs by the various gasoline marketing companies in England has begun, the Anglo-American Oil Co., leading the movement which is being followed by other companies in deference to public opinion.

## Senate Investigation Into Naval Leases Leading to Courts

WASHINGTON, D. C., Feb. 5.—In the naval oil reserve inquiry E. L. Doheny, recalled, told the Senate Committee that both W. G. McAdoo and T. W. Gregory, former attorney general, chosen by President Coolidge with Silas H. Strawn of Chicago, as special counsel for the Government, had at times been paid retainers by his company. Mr. Gregory's selection was at once withdrawn by the President and former Senator Pomerene of Ohio named instead.

Both Senate and House passed Senator Walsh's resolution for annulment of the naval oil leases, carrying $100,000 appropriation for legal expenses in such proceedings. Secretary Denby flatly refused to resign in the face of senatorial demands for his retirement.

Former Secretary Fall appeared before the Senate Committee to decline to testify on the plea that the committee was without authority and that such testimony might tend to incriminate him in view of legal proceedings recommended by the Senate. The committee purposes to strengthen its authority by congressional action and to recall Mr. Fall Friday, citing the law that testimony before Congress cannot be used in court.

The Department of Justice is reported preparing suits to restrain further extraction of oil from naval leases pending decision on the contracts.

# Further Crude Advances Mean Millions

## Production Worth $1,142,120 a Day More Now Than At First Of Year. California Given Another Substantial Raise

By Andrew M. Rowley

If any doubt remained in the mind of any person as to the trend of the oil business in the United States, it should have been dissipated during the past week by the advances in the posted prices for crude announced by the major purchasing agencies in various sections of the country. Following so closely upon a general price advance throughout the country made last month and the numerous other increases in prices posted in the different fields, the latest raise in price can mean but one thing—the buyers are anxious to obtain crude and realize present indications point to a deficiency between production and consumption unless several new fields are developed during this year.

The Prairie Oil & Gas Co., principal purchaser in the Mid-Continent territory, started the most recent series of price advances when it announced last Saturday it would pay from 15 to 25 cents a barrel more for crude it is buying at the wells in Oklahoma, Kansas and North Texas. It established a new grade in its gravity schedule, the new prices announced Saturday being as follows:

| | |
|---|---|
| Below 30 degrees | $1.15 |
| 30 degrees to 32.9 degrees | 1.30 |
| 33 degrees to 35.9 degrees | 1.60 |
| 36 degrees to 38.9 degrees | 1.85 |
| 39 degrees and above | 2.00 |

### Another California Advance

Other large purchasers in the Mid-Continent immediately met the Prairie's prices. The Magnolia Petroleum Co., in addition, announced an advance of 25 cents a barrel for Mexia, Corsicana light and heavy and Powell crudes. On Monday, the Ohio Oil Co. announced that effective on that day its prices for Lima, Indiana, Illinois, Princeton, Plymouth, Waterloo and Wooster crudes would be advanced 20 cents a barrel. The Midwest Refining Co. also announced a 25-cent advance for Salt Creek crude.

Another increase of the greatest importance to the entire industry was announced Tuesday by the Standard Oil Co. of California which increased its prices from 15 cents to 39 cents a barrel. On January 22, this company announced a straight advance of 25 cents a barrel for all grades of California crude, that being the first increase in price for crude in California in three and one-half years. The second substantial increase, coming so soon after the first raise, indicates the feeling of buyers in California as to the situation there and in the remainder of the country.

Wyoming and Montana crudes were advanced also on Tuesday by the Ohio Oil Co., Elk Basin, Grass Creek light, Big Muddy, Rock Creek, Mule Creek, Cat Creek, Lance Creek and Sunburst all getting a 25-cent hike, Luling crude, in Texas, was also raised 25 cents a barrel. On Wednesday, the Standard Oil Co. of Louisiana announced it had increased its posted prices for all grades of crude in all districts where it buys in Louisiana and Arkansas 20 cents a barrel, with the exception of Bellevue, which was advanced 25 cents a barrel.

### What the Increases Mean

On Wednesday of last week, the Paragon Development Co. increased the posted price of Warren and Simpson County crude 15 cents and also raised Cumberland and Monroe County crude 15 cents. The Indian Refining Co. advanced Western Kentucky light and heavy crudes 15 cents a barrel last Thursday.

Quite often the vast importance of even a slight increase in the price of crude is not fully realized. Any increase in the posted price immediately makes all the oil in storage in that territory just that much more valuable in addition to adding greatly to the value of the daily production. The price advances of the past week have added approximately $78,016,250 to the value of oil in storage in California, the Rocky Mountain area, the Central West and in Oklahoma, Kansas and Texas, while the daily production of these sections is worth about $391,945 a day more. The following table will give an idea of what these latest price increases mean to producers and owners of crude in the different areas:

**Increases in Value**

| Area | Stocks | Daily Production |
|---|---|---|
| California | $21,600,000 | $165,120 |
| Rocky Mountain | 4,684,250 | 37,625 |
| Okla., Kans., North and Central Tex. | 42,250,000 | 145,000 |
| Central West | 2,882,000 | 11,000 |
| Louisiana-Arkansas | 6,600,000 | 33,200 |
| Totals | $78,016,250 | $391,945 |

**Worth $216,392,950 More**

Since January 1 of this year, crude petroleum in storage in the United States has increased in value to the amount of approximately $216,392,950, while the average daily production of all the fields of the country is bringing now about $1,142,120 more each day than it did on the first of the year. The following table shows the increases in value of oil in storage and in daily production throughout the country as the result of the advances in crude which have been made thus far:

| Area | Stocks | Daily Production |
|---|---|---|
| California | $ 44,100,000 | $ 337,120 |
| Rocky Mountain | 15,895,000 | 127,500 |
| Okla., Kans., N. & C. Tex. | 120,000,000 | 493,900 |
| Eastern | 10,388,000 | 67,500 |
| Gulf Coast | 11,159,750 | 41,400 |
| Louisiana-Arkansas | 14,850,000 | 74,700 |
| Totals | $216,392,950 | $1,142,120 |

**THE FOLLOWING TABLE SHOWS THE COSTS OF DRILLING THE WELLS COMPLETED DURING 1923 IN THE DIFFERENT FIELDS**

| Area | Wells | Cost |
|---|---|---|
| Oklahoma | 5,833 | $168,733,500 |
| Kansas | 1,405 | 29,737,000 |
| North Texas | 2,666 | 58,286,000 |
| East Central Texas | 771 | 16,962,000 |
| Louisiana and Arkansas | 2,150 | 34,706,000 |
| Total Mid-Continent | 12,825 | $308,424,500 |
| Eastern Fields | 4,528 | 22,640,000 |
| Central West and West Kentucky-Tennessee | 3,787 | 12,517,500 |
| Gulf Coast | 1,600 | 72,405,000 |
| Rocky Mountain-Wyoming, Montana, Utah, New Mexico | 709 | 15,452,000 |
| California | 980 | 84,265,000 |
| Total United States | 24,438 | $515,704,000 |
| Total Mid-Continent | 12,825 | 308,424,500 |
| Entire United States outside Mid-Continent | 11,613 | $207,279,500 |

### Equipment Concerns Benefit

It is needless to make much comment upon the importance and benefit to the entire oil industry of this material increase in values of the oil held in storage and the daily production. Financial institutions and business enterprises in all sections of the oil producing territory are also benefited to a great extent while the million and more dollars received daily by the producer is a veritable lifesaver after the depression and low prices which prevailed last year. Aside from the straightening out of old accounts, it means the wherewithal for further development work.

Already the effect of the increased prices for crude is being experienced in a majority of the producing areas and promising sections of the United States in greater activity in development work. There were 313 more rigs and wells drilling in the various fields east of California during January than in December while reports from all sections indicate further activity as a result of the stimulus of higher prices.

What this increased activity means to the supply and equipment industry may be judged from the fact that during 1923, one of the dullest years in the history of the oil industry, when activity was reduced to a minimum because of the overproduction situation, proration and a forced curtailment of drilling there was spent approximately $515,704,000 in the drilling of the 24,438 wells completed in the oil fields of the United States. This amount does not include the vast sums spent for pipe lines, pumping equipment, storage tanks and other supplies needed after oil was struck. It represents solely the cost of drilling the wells and does not include the enormous sums spent in fishing jobs and as a result of other such delays and accidents.

In the Mid-Continent territory alone, $308,424,500 was spent in drilling the 12,825 wells completed in that section.

### Salt Water at Cacalilao

A development of late last week, which may have a most important bearing upon the oil situation in the United States, was the incursion of salt water in the Cacalilao sector of the Panuco Field in Mexico. This sector has been one of the most active recently in Mexico and considerable production has been secured from Lot 4 there, which was invaded by salt water early last Saturday. During 24 hours, ending Saturday, it was estimated the salt water had resulted in a loss of production amounting to about 23,000 barrels a day. As a major part of the imports of crude of the United States comes from Mexico, anything affecting production there is bound to be of paramount importance to the industry in this country. Operators here will watch with intense interest the progress of the salt water invasion at Cacalilao.

### Osage Sale Is Important

Another important development of the near future, particularly as it relates to oil field supply and equipment concerns and the production of Oklahoma, is the Osage sale of leases to be held at Pawhuska, Okla., on March 18 and 19. For the first time since these lease sales were inaugurated November 11, 1912, more than 100,000 acres will be offered. This will be the first sale since April 5 of last year. Regulations of the Interior Department provide for the sale of leases on 100,000 acres of land each year but sales were discontinued last year due to the depressed condition of the oil business. The leases to be offered next month consist of 633 tracts. The terms of sale provide that at least one well must be drilled to the Mississippi lime within one year unless oil or gas production in commercial quantities is found at a lower level.

With the increased activity in drilling operations evident everywhere, it seems assured there will not be many of the 633 tracts which will not be sought. With the leasing of this land, one of the greatest periods of development work in the Burbank area will be inaugurated.

## MILLION EDITORIALS FROM JOURNAL DISTRIBUTED AT FILLING STATIONS

Over one million leaflets reprinting editorials from The Oil and Gas Journal placing the case of the petroleum industry before the public are being put in circulation at filling stations throughout the country.

One deals with "The Dangers of Government Interference in the Oil Industry;" a second on "The Cost of Cheap Gasoline," and the third, "Why Political Management," published in the issue of November 1, 1923.

These editorials, conceived with the purpose of placing the conditions and situation in the oil business frankly before the people, have been republished in several newspapers, marketing publications and association bulletins and have been the subject of much favorable comment by oil men as a trustworthy and comprehensive statement of the fundamental facts about the industry which the public ought to know.

A number of great marketing companies have been so impressed with the possibilities in distributing these to their customers at their filling stations and with the reported results of that circulation direct to the people immediately interested, that they have asked that these editorials from The Oil and Gas Journal be prepared in leaflet form for nation-wide distribution.

The present agitation over oil, in and out of Congress, and the necessity for advancing prices make it particularly timely to get the industry's side into the hands of the public at once, and these leaflets are considered the most effective and most direct contact with the people actually interested, the consumers of gasoline.

# European Nations Realize Need for Oil

## Activities of Past Year Described Together With Development Work Planned and Where They Have Been Getting Supply

By Special Correspondent

**PARIS, France, Jan. 25.—Taken as a whole the old European Continent is far from playing as important a part in the oil industry as does the American Continent.**

**The crude oil production, the refining industry and, even, the oil consumption of the various European countries amount to rather little when compared to the achievements of the American oil industry. Nevertheless, considering the part played by "King Petroleum" in the industrial, economical and political life of all the nations of the world, it is obviously interesting to know what results have been achieved in each of the European countries, amongst which figure some of the world's greatest powers, during the year just ended.**

**In this article, the writer will try to show what the oil activities of each European country have been during the past year, to what extent said countries have developed an oil production, or increased their already existing production, how and where they have been getting their oil supply, and what legislation they have enacted in order to favor the development of an oil industry of their own, beginning with Rumania and Poland, which are the two principal oil countries, as, in the writer's opinion, the oil deposits of the Baku district of Russia, which have been a center of military and political activities in the last few years, belong to Asia rather than to Europe.**

### Rumania

**Rumania is slowly but surely overcoming the numerous difficulties which had resulted from the devastation of her oil territory following the advance of the German armies into her frontiers, during the World War. The production of her oil fields keeps increasing as is shown by the following figures:**

| Year | Metric Tons |
|---|---|
| 1919 | 920,410 |
| 1920 | 1,034,017 |
| 1921 | 1,163,623 |
| 1922 | 1,363,531 |
| 1923 January | 128,117 |
| February | 116,696 |
| March | 138,916 |
| April | 128,884 |
| May | 124,721 |
| June | 124,461 |
| July | 125,985 |
| August | 127,287 |
| September | 120,234 |
| October | 120,471 |
| November | 122,374 |
| December | 123,000 |
| Total | 1,501,146 |

**Most of this production has been refined in Rumania, by the domestic refineries.**

**During the first nine months of 1923 the output of the Rumanian refineries was as follows:**

| Crude oil treated— | Met. Tons |
|---|---|
| January-June | 680,071 |
| July | 110,998 |
| August | 114,238 |
| September | 121,123 |
| Total 9 months | 1,026,430 |
| Gasoline— | Met. Tons |
| January-June | 160,088 |
| July | 24,665 |
| August | 25,611 |
| September | 27,024 |
| Total 9 months | 237,388 |
| Kerosene— | |
| January-June | 110,463 |
| July | 15,603 |
| August | 17,054 |
| September | 18,639 |
| Total 9 months | 161,759 |
| Lubricants— | |
| January-June | 66,539 |
| July | 10,331 |
| August | 9,983 |
| September | 13,833 |
| Total 9 months | 100,686 |
| Fuel oils— | |
| January-June | 331,550 |
| July | 56,650 |
| August | 59,849 |
| September | 59,514 |
| Total | 507,563 |

### WHAT EUROPE IS DOING TO OBTAIN PETROLEUM

As the present situation affecting the production of crude petroleum in the United States indicates there may be a deficiency in the output during 1924 unless new fields are developed in this country, The Oil and Gas Journal has made arrangements for a special correspondent in Europe to keep the industry informed as to all matters pertaining to the production, consumption and distribution of petroleum and its products abroad as well as in this country.

The correspondent is in a position to obtain accurate data relating to all branches of the petroleum industry in Europe, including phases pertaining to the commercial, statistical, legal and political aspects. For a number of years he was located in the United States where he specialized in matters pertaining to the oil business and he has visited the oil fields of California, Oklahoma, Texas, Louisiana and Mexico.

As is well known, up to quite recently, the Rumanian oil industry was subjected to very drastic restrictions concerning its export trade. Owing to the country's lack of solid fuel the export of crude oils and fuel oils was strictly prohibited, the export of other oil products being, moreover, subject to very strict regulations. For that reason Rumania's oil export was, as during the previous years, rather limited, most of the exported products being shipped to the so-called Danubian countries.

### Rumania's Exports

During the first nine months of 1923 Rumania's exports amounted to the following quantities, as compared with the same period of 1922.

| | M Tons 1922 | M.Tons 1923 |
|---|---|---|
| Crude oil | 0 | 925 |
| Gasoline | 94,215 | 108,125 |
| Kerosene | 197,363 | 141,663 |
| Gas oil | 10,125 | 21,819 |
| Lubricants | 13,809 | 12,384 |
| Totals | 315,512 | 284,916 |

As will be seen from the preceding figures Rumania's export trade seems to be decreasing, which can oly be explained by the fact that the needs and consumption of the domestic enterprises keep increasing regularly.

Quite recently the Rumanian oil industry has been set on a new footing through the publication of a new decree, which became immediately operative. This decree is very concise and will certainly have a considerable effect in rendering more popular all investments in the country's growing petroleum industry. In fact it decides the freedom of the oil trade, both at home and abroad. This return to free trade is the more remarkable as the Rumanian transport industry keeps being hampered by a shortage of fuel oil, and is protected by the new law to the extent only that the Rumanian oil companies are obliged to enter into contracts with the Rumanian railways, undertaking to supply the oil which the railways need, that is, about 22,000 tons monthly—at the old controlled price of 15,000 lei per wagon (10 metric tons) while the world price centers around 36,000 lei.

Briefly summed up, the new regime declares the trade in oil free, at home and abroad. In so far as the home trade is concerned, that freedom is complete. Both the fixing of prices and the distribution of products will henceforward be in the hands of the oil companies. The only general restriction is that internal prices, at the refineries, must not exceed world prices (f. o. b. Mexican Gulf). As to the export business, with the exception of crude oil, the export of which remains prohibited, all oil products are free for export on payment of the existing export taxes.

With such regulations, the future of the Rumanian oil industry cannot help being bright, and there is no doubt that 1924 will be a year of good results and success for that country's oil business.

### Poland

Although materially improving, the Polish oil industry does not seem to have achieved, during the year 1923, results as satisfactory as those achieved by the Rumanian oil industry. One must recognize, however, that Poland's oil production is slightly increasing, in spite of the many difficulties, all of them resulting from the late war.

Talking about the Polish oil industry's slow recovery, some European papers raised the objection that the Polish Government had up to now failed to investigate its oil territories from the geological point of view. As a matter of fact it is true that these territories have not yet been properly investigated, so that it is hardly possible to have even an approximate idea of Poland's oil resources, but it seems rather difficult to claim of a State that has been in existence scarcely five years, and during that time had to create a whole administration, to draw and ratify a Constitution, and even wait for the ratification of its frontiers, that, at the same time, it should be in a position to invest large sums in scientific research. But even in that direction a good start was made. After having organized a State Geological Institute, the Polish Government created a geological department at Cracow.

During the month of May, last, at the initiative of those two institutions, a congress of Polish geologists was held at Boryslaw. The geologists decided, then, to divide among themselves the map—making work of the northern slope of the Carpathian Mountains up to the eastern frontier of Poland. It may thus be assumed that during the present year prospective work will be started on these territories.

Furthermore, it must be noted that the oil industry is working in a more thrifty way. The drillers are saving on fuel by using for their drilling gas, electric and crude oil motors. Moreover, instead of using their old style drilling outfits, most of the producing oil companies have decided to adopt new and modern methods such as the rotary and standard cable systems of drilling.

### Drilling Activity Greater

With regard to the general situation of the Polish oil industry, it is, obviously, rather difficult. This is due to the constant exhaustion of the old oil territories, mainly Boryslaw, Tustanowice and Mraznica, and the lack of discovery of new ones.

In spite of this the drilling activity is increasing and the production of crude oil is showing, as against previous years, a slight improvement, as can be seen by the following figures:

The production of crude oil for the period covering the first nine months of the year 1923 amounted to 548,840 metric tons. After deducting the amount of crude oil used for burning purposes at the wells and the residues, the net production amounted to 470,890 metric tons. During the same period of the previous year, 1922, the net production amounted to 444,170 metric tons, which corresponds to a 5 per cent increase for the year 1923. It is to be noted that, according to figures published later on, the crude oil production in October, 1923, was by 4,000 tons larger than the production in September.

This increase, though small and slow, must, however, be considered as a great step forward in view of the constant fall of production which lasted until the beginning of 1922.

### Refinery Operations

Referring to the refining branch of the Polish oil industry, it is to be noted that the local refineries, although handicapped by a shortage of crude material, worked more and more for the domestic consumption.

Their output amounted, during the first nine months of 1923, to 487,500 tons, whereas, during the corresponding months of 1922, they had refined 546,910 tons.

During the same period of 1923 the by products used by the local markets amounted to 174,373 tons, while 237,600 tons were shipped abroad.

During the year 1922 and the first nine months of 1923, the exportation percentage to various countries was as follows:

| | 1922 | 1923 |
|---|---|---|
| Germany | 36.0% | 30.0% |
| Austria | 19.0% | 15.0% |
| Czecho-Slovakia | 17.0% | 28.0% |
| Hungary | 6.4% | 6.0% |
| Danzig | 15.0% | 13.0% |
| France | 2.7% | 1.0% |
| Switzerland | 1.8% | 5.5% |
| Other countries | 2.1% | 2.5% |

Briefly speaking one may entertain quite encouraging hopes concerning the future of the Polish oil industry.

Before concluding, it may be of interest to mention the various oil agreements signed by the Polish Government with other European countries. The most important of them was the oil agreement signed with the French Government, and only recently approved by the French chambers, which favors very destinctly French oil companies working in the Galician oil fields. Another important oil agreement was signed by the Polish Government with the Italian Government. In this agreement, which was signed on January 31, 1923, the Polish Government assures to all oil undertakings in which Italian capital is interested all the rights and privileges accorded to similar undertakings in which any other foreign capital is interested.

### France

Next to Rumania and Poland, as an oil producing country, comes France, the production of which, as compared to that of the other oil producing countries of the world, amounts to very little.

France's oil production is actually limited to the Alsacian oil fields of the Pechelbronn district, recuperated from Germany at the end of the late war. France's efforts to develop the oil production of her only oil fields, will be shown by the following production figures:

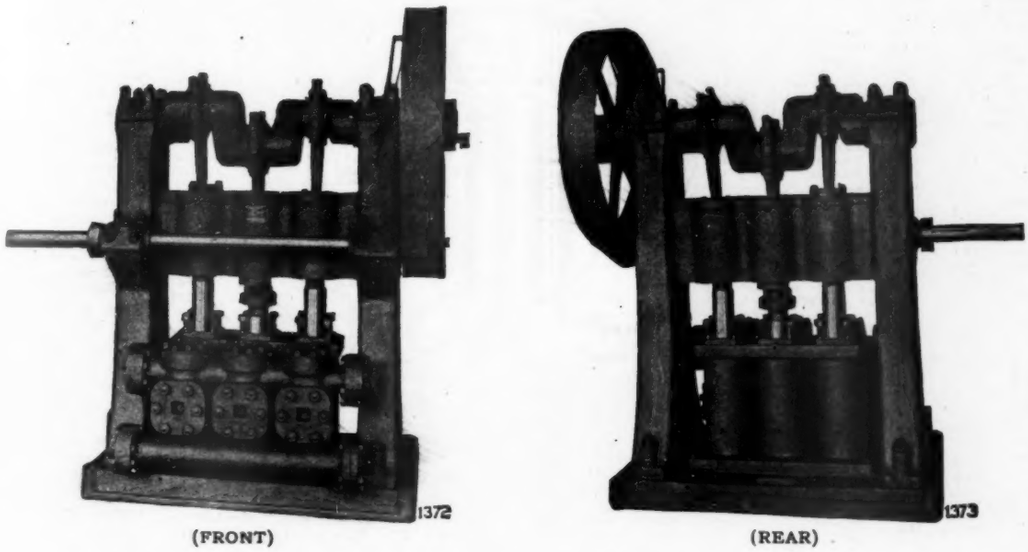
| Year | Met. Tons |
|---|---|
| 1913 | 47,350 |
| 1919 | 54,000 |
| 1920 | 55,000 |
| 1921 | 70,000 |
| 1922 | 76,000 |
| 1923 (estimated) | |

### France's Consumption

This, of course, does not mean much when considering that France's needs

(Continued on Page 113)

# "THE WALLFLOWER"



(FRONT) (REAR)

Some of us call her that because her back is so made that she sits right up against a wall, out of the way. An unused corner is just what she craves.

But she is not backward, Oh, no. You should see her flirting with A Press. Gauge—the way she keeps the old boy up around 900 lbs. is wonderful to see. And she doesn't allow him to dance either,—holds him right up to the mark.

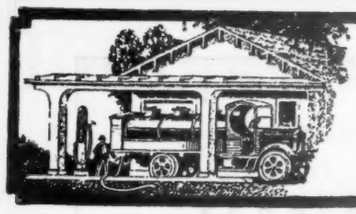
---

Our Engineering Department says it is a 4 x 8" Vertical Triplex Power Pump of the low clearance type, for either belt or attached motor drive, for 900 lbs. working pressure. They invite particular attention to the fact that the rear side is without anything that might require attention. Everything is easily accessible from the front. Fluid cylinders with valve chests removable from the main frame.

***Description, photographs and blue prints on request***

## NATIONAL TRANSIT
## PUMP AND MACHINE COMPANY
### OIL CITY, PENNA.

**District Offices: New York, Philadelphia, Pittsburgh, Cleveland, Tulsa, Houston and Denver**



# TANK WAGON MARKETS

**Tank wagon quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, Feb. 5**

## ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

### STANDARD OIL CO (INDIANA)

**Main Service Station Price**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| Chicago district | 18.0 | .. | 20.0 | 13.0 |

Tank wagon prices on April 10, 1922, g. up 1½c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c; k. down 1c; Oct. 10, g. down 2c; Oct. 31, g. down 1c; Feb. 5, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c; Dec. 29, g. up 2c; Jan. 12, 1924, g. up 2c; k. up 1c.

| | | | | |
|---|---|---|---|---|
| Decatur, Ill. | 18.2 | .. | 20.2 | 12.5 |
| East St. Louis | 17.1 | .. | 19 35 | 11.6 |
| Joliet | 18.4 | .. | 20.4 | 12.7 |
| Peoria | 18.2 | .. | 20.2 | 12.5 |
| Quincy | 18.2 | .. | 20.2 | 12.3 |
| Davenport, Ia. | 17.5 | .. | 19.5 | 12.9 |
| Des Moines | 18.5 | .. | 20.5 | 12.9 |
| Keokuk | 18.5 | .. | 20.5 | 12.9 |
| Sioux City | 18.1 | .. | 20.1 | 12.5 |
| Duluth, Minn. | 19.2 | .. | 21.2 | 13.6 |
| Minneapolis | 18.9 | .. | 20.9 | 13.6 |
| La Crosse, Wis. | 19.2 | .. | 21.2 | 13 4 |
| Milwaukee | 18.1 | .. | 20.1 | 12.5 |
| Madison | 18.3 | .. | 20.3 | 12.5 |
| Detroit, Mich. | 18.8 | .. | 20.8 | 13.2 |
| Grand Rapids | 18.7 | .. | 20.7 | 13.1 |
| Saginaw | 18.9 | .. | 20.9 | 13 3 |
| Evansville, Ind. | 20.0 | 2.0 | 22.0 | 12.5 |
| Fort Wayne | 20.4 | 2.0 | 22.4 | 13.9 |
| Indianapolis | 20.4 | 2.0 | 22.4 | 12.7 |
| South Bend | 20.4 | 2.0 | 22.4 | 12 9 |
| Fargo, N. D. | 20.6 | 1.0 | 22.6 | 15.6 |
| Huron, S. D. | 22.0 | 2.0 | 24.0 | 14.1 |
| Sioux Falls | 19.5 | 2.0 | 21 5 | 13.6 |
| *Kansas City | 18.9 | 1.0 | 20.9 | 11.2 |
| Springfield | 17.8 | .. | 19.8 | 12.2 |
| *St. Louis | 17.6 | .5 | 19.9 | 12.0 |
| *St. Joseph | 18.3 | .5 | 20.3 | 12.2 |
| Wichita, Kans. | 17.8 | .. | 19.8 | 11.8 |
| Bartlesville, Okla. | 22.0 | 1.0 | 24.0 | 15.5 |

*City tax.

### PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

**Atlantic Refining Co.**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| *Pittsburgh, Pa. | 19.0 | .. | 24.0 | 14.0 |
| *Philadelphia | 19.0 | .. | 24.0 | 14.0 |
| *Scranton | 19.0 | .. | 24.0 | 14.0 |
| *Allentown | 19.0 | .. | 24.0 | 14.0 |
| *Altoona | 19.0 | .. | 24.0 | 14.0 |
| Dover, Del. | 21.0 | 2.0 | 24.0 | 14.0 |
| Wilmington | 21.0 | 2.0 | 24.0 | 14.0 |
| Providence, R. I | 20.0 | .. | 23.0 | 14.0 |
| Springfield, Mass | 20.0 | .. | 22.5 | 14.0 |
| Worcester | 20.0 | .. | 22.5 | 14.0 |
| Boston | 20.0 | .. | 22.5 | 14.0 |
| Hartford, Conn. | 21.0 | 1.0 | 24.0 | 14.0 |
| New Haven | 21.0 | 1.0 | 24.0 | 14.0 |

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

### ROCKY MOUNTAIN DISTRICT

**Continental Oil Co.**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| Denver, Colo. | 19.0 | 2.0 | 21.0 | 14.5 |
| Glenwood Spgs. | 23.0 | 2.0 | .... | 18.5 |
| Pueblo | 19.0 | 2.0 | .... | 14.5 |
| Billings, Mont. | 21.5 | 2.0 | 23.5 | 16.5 |
| Butte | 23.0 | 2.0 | 25.0 | 17.0 |
| Great Falls | 23.0 | 2.0 | 25.0 | 18.0 |
| Helena | 23.0 | 2.0 | 25.0 | 18.0 |
| Miles City | 22.5 | 2.0 | 24.5 | 17.5 |
| Boise, Idaho | 20.0 | 2.0 | 22.0 | 20.0 |
| Salt Lake, Utah | 21.0 | 2.5 | 23.0 | 17 5 |
| Ogden | 21.0 | 2.5 | 23.0 | 17.5 |
| Basin, Wyo. | 20.0 | 1.0 | .... | 15.0 |
| Casper | 18.0 | 1.0 | 20.0 | 13.0 |
| Cheyenne | 19.5 | 1.0 | 21.5 | 15.0 |
| Cody | 21.0 | 1.0 | .... | 16.0 |
| Lander | 20.0 | 1.0 | .... | 15.0 |
| Albuquerque, N. M. | 22.0 | 1.0 | 24.0 | 17.5 |

### SOUTHERN DISTRICT

**Standard Oil Co. (Kentucky)**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| Atlanta, Ga. | 20.0 | 3.0 | 24.0 | 13.0 |
| Augusta | 24.0 | 3.0 | 26.0 | 14.5 |
| Macon | 24.0 | 3.0 | 26.0 | 15.5 |
| Savannah | 22.0 | 3.0 | 24.0 | 14.0 |
| Birmingham, Ala. | 22.0 | 2.0 | 24.0 | 15.5 |
| Mobile | 21.0 | 2.0 | 23.0 | 13.5 |
| Montgomery | 23.0 | 2.0 | 25.0 | 16.5 |
| Clarkadale, Miss | 20.0 | 1.0 | 22.0 | 14.0 |
| Jackson | 20.0 | 1.0 | 22.0 | 12.0 |
| Natchez | 19.5 | 1.0 | 21.5 | 13.5 |
| Vicksburg | 19.5 | 1.0 | 21.5 | 13.5 |
| Jacksonville, Fla | 22.0 | 3.0 | 24.0 | 14.0 |
| Miami | 24.0 | 3.0 | 26.0 | 15.5 |
| Pensacola | 22.0 | 3.0 | 24.0 | 14.5 |
| Tampa | 22.0 | 3.0 | 24.0 | 14.0 |
| Covington, Ky. | 21.0 | 1.0 | 23.0 | 13.0 |
| Lexington | 21.0 | 1.0 | 22.0 | 14.0 |
| Louisville | 20.0 | 1.0 | 22.0 | 13.0 |

### ATLANTIC COAST DISTRICT

**Standard Oil Co. (New Jersey)**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| Newark, N. J. | 19.5 | .. | .... | 14.0 |
| Atlantic City | 19.5 | .. | .... | 14.0 |
| Annapolis, Md. | 21.0 | 2.0 | 23.0 | 14.0 |
| Baltimore | 21.0 | 2.0 | 23.0 | 13.0 |
| Cumberland | 21.0 | 2.0 | 24.0 | 13.5 |
| Washington, D. C. | 19.0 | .. | 23.0 | 13.5 |
| Norfolk, Va. | 22.0 | 3.0 | 24.0 | 14.0 |
| Petersburg | 22.0 | 3.0 | 24.0 | 14.5 |
| Danville | 22.0 | 3.0 | 24.0 | 14.5 |
| Richmond | 22.0 | 3.0 | 24.0 | 14.5 |
| Roanoke | 22.0 | 3.0 | 24.0 | 14.5 |
| Keyser, W. Va. | 21.0 | 3.0 | .... | 14.5 |
| Charleston | 21.0 | 3.0 | .... | 14.5 |
| Parkersburg | 21.0 | 3.0 | .... | 13.0 |
| Wheeling | 21.0 | 3.0 | .... | 14.5 |
| Charlotte, N. C. | 22.0 | 3.0 | .... | 14.5 |
| Hickory | 22.0 | 3.0 | .... | 14.5 |
| Mt. Airy | 22 0 | 3.0 | .... | 14.5 |
| Salisbury | 22.0 | 3.0 | .... | 14.5 |
| Charleston, S. C. | 23.0 | 3.0 | .... | 13.5 |
| Columbia | 22.0 | 3.0 | 24.0 | 14.5 |

### CENTRAL SOUTH DISTRICT

**Standard Oil Co. (Louisiana)**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| New Orleans, La | 17.5 | 1.0 | 20.5 | 9.0 |
| Alexandria | 18.5 | 1.0 | 21.5 | 13.0 |
| Baton Rouge | 17.0 | 1.0 | 20.0 | 11.5 |
| Lake Charles | 18.5 | 1.0 | 21.5 | 13.0 |
| Shreveport | 18.5 | 1.0 | 21.5 | 13.0 |
| Memphis, Tenn. | 20 0 | 2.0 | 22.0 | 14.0 |
| Chattanooga | 20.5 | 2.0 | 22.5 | 14.5 |
| Knoxville | 21.5 | 2.0 | 23.5 | 15.0 |
| Nashville | 19.5 | 2.0 | 20.5 | 13.5 |
| Bristol | 22.0 | 2.0 | 24.0 | 15.5 |
| Little Rock, Ark | 21.0 | 2.0 | 23.0 | 13.0 |

### NEW YORK AND PART OF NEW ENGLAND DISTRICT

**Standard Oil Co. (New York)**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| Albany, N. Y. | 20.0 | .. | 23.0 | 14.0 |
| *New York | 20.0 | .. | 22.5 | 15.0 |
| Buffalo | 18.5 | .. | 21.5 | 15.0 |
| Rochester | 19.5 | .. | 21.5 | 13.0 |
| Syracuse | 19.5 | .. | 21.5 | 15.0 |
| Boston, Mass. | 20.0 | .. | 22.5 | 15.0 |
| Providence, R. I | 20.0 | .. | 23.5 | 15.0 |
| Augusta, Me. | 20.0 | 1.0 | 23.5 | 15.0 |
| Manchester | 20.0 | 1.0 | 23.5 | 15.0 |
| Burlington, Vt. | 20.0 | 1.0 | 23.5 | 15.0 |

*Price in steel barrels.

### PACIFIC COAST DISTRICT

**Standard Oil Co. (California)**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| San Francisco | 17.0 | 2.0 | 20.0 | 15.5 |
| Los Angeles | 16.0 | 2.0 | 19.0 | 15.5 |
| Fresno | 17.5 | 2.0 | 20.5 | 17.5 |
| Reno, Nev. | 20.5 | 2.0 | 23.5 | 19.0 |
| Portland, Ore. | 19.0 | 3.0 | 22.0 | 16.5 |
| Seattle, Wash. | 18.0 | 2.0 | 19.0 | 16.5 |
| Tacoma | 18.0 | 2.0 | 21.0 | 16.5 |
| Spokane | 22.0 | 2.0 | 25.0 | 20.5 |
| Phoenix, Ariz. | 23.0 | 3.0 | 26.0 | 21.5 |

### SOUTHWESTERN DISTRICT

**Magnolia Petroleum Co.**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| Dallas, Tex. | 17.0 | 1 0 | 20.0 | 10.0 |
| Fort Worth | 17.0 | 1.0 | 20.0 | 11.0 |
| Houston | 17.0 | 1.0 | 21.0 | 12.0 |
| San Antonio | 16.0 | 1.0 | 18.0 | 10.0 |
| El Paso | 17.0 | 1.0 | 20.0 | 13 0 |
| Muskogee, Okla. | 17.0 | 1.0 | 20.0 | 12.0 |
| Oklahoma City. | 16.0 | 1.0 | 20.0 | 12.0 |
| Tulsa | 17.0 | 1.0 | 20.0 | 10.0 |
| Ft. Smith, Ark. | 22 0 | 4.0 | 25.0 | 13.0 |
| Litle Rock | 22.0 | 4.0 | 25.0 | 13.0 |
| Texarkana | 19.0 | 4.0 | 22.0 | 12.0 |

### NEBRASKA

**Standard Oil Co. (Nebraska)**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| Omaha | 18.25 | .. | 20.25 | 12.5 |
| Crawford | 19.0 | .. | .... | 13.25 |
| McCook | 19.75 | .. | 21.75 | 14 0 |
| Norfolk | 18.75 | .. | 20.75 | 13.0 |
| North Platte | 19.75 | .. | 21.75 | 13.75 |
| Scotts Bluff | 19.25 | .. | 21.25 | 13.25 |

### OHIO

**Standard Oil Co. (Ohio)**

| | Gasoline Tank wagon | Gasoline Incids tax of | Gasoline Service station | Kero. Tank wagon |
|---|---|---|---|---|
| All Ohio points. | 20.0 | .. | 22.0 | 15.0 |

### TANK WAGON CHANGES

(Changes Not Previously Reported)

January 23.—Standard Oil Co. of Indiana reduced gasoline tank wagon and service station price 1 cent at Davenport, Iowa.

January 29.—Atlantic Refining Co. advanced gasoline tank wagon and service station prices 2½ cents in New England.

January 30.—Magnolia Petroleum Co. advanced gasoline tank wagon and service station prices 2 cents in Arkansas. This change was previously reported as having been effective January 29, the same date that gasoline was advanced 2 cents in Texas. Standard Oil Co. of New Jersey adjusted kerosene tank wagon schedules at several points with advances in some cases and reductions in others. Standard Oil Co. of Indiana advanced gasoline tank wagon 2 cents and service station price 4 cents at Sioux Falls, S. D.

February 1.—Continental Oil Co. advanced kerosene tank wagon price 1 cent at Albuquerque, N. M.

February 2.—Standard Oil Co. of Kentucky advanced gasoline tank wagon and service station prices 2 cents in entire territory.

February 4.—Standard Oil Co. of Ohio advanced gasoline tank wagon and service station prices 1½ cents and kerosene ½-cent, in Ohio.

February 5.—Standard Oil Co. of Indiana advanced gasoline tank wagon and service station prices 2 cents and kerosene 1 cent in entire territory. Standard Oil Co. of California advanced gasoline tank wagon and service station prices 2 cents in entire territory.

February 6.—Standard Oil Co. of Nebraska advanced gasoline tank wagon and service station prices 2 cents and kerosene 1 cent in entire territory.

## HIGHER PRICE TREND REPORTED IN HOUSTON

HOUSTON, Tex., Feb. 4.—Only the heavier grades of zero cold test lubricants have responded to the last advance of coastal crude, 15 cents a barrel, 10 days ago. The 200 and the 300 viscosity oils have been marked up a half cent a gallon. The advance on 500 and 750 viscosity products has been 1 cent.

While these advances have come immediately after the crude advance, there is some evidence that the inquiry for oils for warm weather use has been responsible for the change. Jobbers are now looking about for their supplies for the motoring season. Inquiries on the heavier oils have taken a jump and refiners have been quick to keep their prices in line with the tendency of the whole market.

So far refineries in the Houston area have not begun running heavier oils beyond the usual winter demands. Orders on hand seem sure to keep the plants busy for February on the lighter lubricants. As there is very little of finished oils in storage, it seems that the demand for heavier oils will come when refiners are little prepared to care for them. From every angle it looks like a refiners' market for summer oils.

There are no predictions for higher prices. But all refiners admit that their quotation are being readily accepted on all oils. So the tendency is for still higher prices, even with crude oil at its present level.

The lighter oils are firm at prevailing quotations are being readily accepted on immediate shipment and the quantities are sufficient for only the remainder of the cold weather season.

Both gas oil and fuel oil are steady. Fuel oil should ease off after February, as its use in South Texas will then be for industrial uses only.

## PRAIRIE SHIPMENTS

Prairie Pipe Line Co.'s crude shipments for January were 3,942,645 bbls., or a daily average of 127,182 bbls. This is a decrease of 220,115 bbls. from the shipments for December, which were 4,162,760 bbls., and a decrease in daily average of 7,068 bbls. The shipments for January, 1923, were 5,085,840 bbls. or 164,057 bbls. per day.

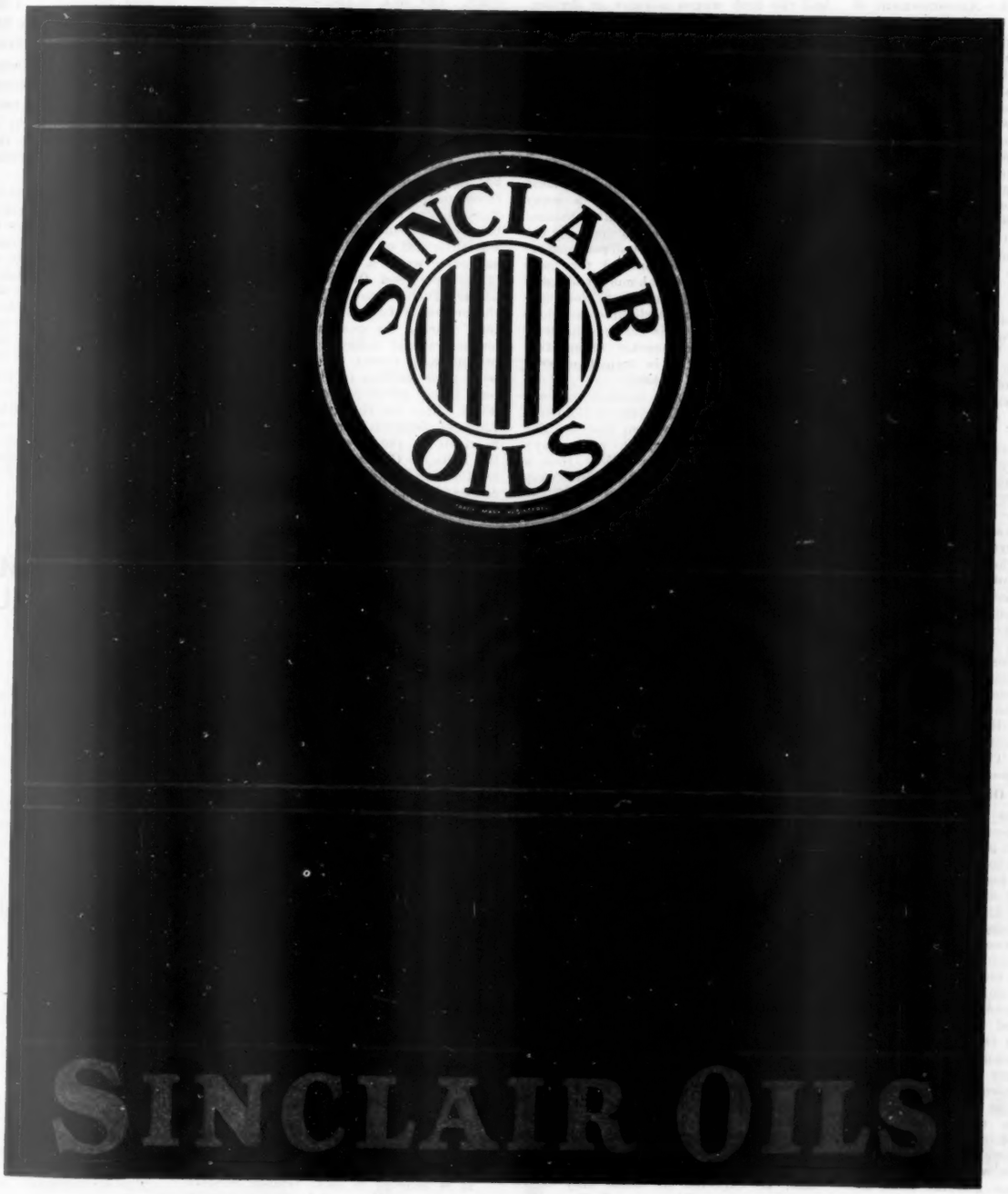
## MID-CONTINENT REFINING OPERATIONS

Production of gasoline, kerosene and fuel and gas oils showed a large increase for the week ending January 26, in the Mid-Continent refining area over the previous week, according to the weekly report of the Western Petroleum Refiners' Association. Gasoline production increased approximately 1,500,000 gallons, kerosene 750,000 gallons and gas and fuel oils more than 3,000,000 gallons. The deliveries of all three products also increased, however, and so that according to report gas and fuel oil stocks were actually 11,000,000 gallons less. Gasoline stocks increased a little less than 1,000,000 gallons with the additional kerosene stocks totaling for the five areas, slightly in excess of 1,000,000 gallons.

**CONSOLIDATED STATEMENT COVERING ALL REPORTING REFINERIES FOR WEEK ENDING 7 A. M., JANUARY 26, 1924**

| | Kansas | Oklahoma | Texas | Louisiana-Arkansas | Total | Wk. End. Jan. 19 | Wk. End. Dec. 29 | Wk. End. Nov. 24 |
|---|---|---|---|---|---|---|---|---|
| Number of refineries report.. | 24 | 58 | 41 | 12 | 135 | 135 | 131 | 126 |
| Daily capacity of stills, bbls. | 83,900 | 260,700 | 132,150 | | | | | |
| Materials for stills, bbls.: | | | | | | | | |
| Crude, Item A | 272,465 | 878,692 | 554,929 | 100,909 | 1,806,995 | 1,815,320 | 1,677,437 | 1,700,615 |
| Other oils (see note), Item B | 27,117 | 183,411 | 149,649 | 15,091 | 375,268 | 315,027 | 276,147 | 492,296 |
| Total | 299,582 | 1,062,103 | 704,578 | 116,000 | 2,182,263 | 2,130,347 | 1,953,584 | 2,192,911 |
| Output of finished products, gals.: | | | | | | | | |
| Gasoline, Item C | 4,085,798 | 15,676,243 | 6,435,980 | 959,935 | 27,157,956 | 23,799,896 | 24,363,941 | 22,788,462 |
| Kerosene, Item D | 1,483,526 | 4,628,366 | 1,935,307 | 308,741 | 8,355,939 | 7,594,838 | 7,614,934 | 8,106,375 |
| Gas and fuel oil, Item E | 5,729,698 | 17,973,230 | 12,246,370 | 2,238,579 | 38,187,877 | 35,429,189 | 37,640,121 | 32,902,776 |
| Stocks on hand at close of week: | | | | | | | | |
| Materials for stills, bbls.: | | | | | | | | |
| Crude, Item J | 565,875 | 4,159,526 | 830,396 | 1,088,787 | 6,644,584 | 6,866,282 | 7,032,473 | 6,736,696 |
| Other oils (see note), Item K | 19,058 | 993,792 | 449,820 | 555,047 | 2,017,717 | 2,014,066 | 1,688,370 | 1,790,133 |
| Finished products, gals.: | | | | | | | | |
| Gasoline, Item L | 7,765,335 | 67,098,544 | 40,316,098 | 5,718,276 | 120,898,253 | 119,936,872 | 104,340,118 | 101,063,221 |
| Kerosene, Item M | 1,320,484 | 6,991,428 | 10,715,558 | 519,623 | 19,547,093 | 18,757,949 | 18,434,027 | 18,467,866 |
| Gas and fuel oil, Item N | 6,688,711 | 49,987,897 | 43,186,448 | 11,091,186 | 109,954,242 | 120,034,870 | 92,098,385 | 105,961,176 |

Note—Other oils includes all oils other than crude which are either purchased or withdrawn from stocks and run to stills during the week. The total of Items A and B is, therefore, the net quantity of materials consumed by the reporting refineries in producing the quantities of products shown as the result of the operation of the refineries during the week. Item K includes all stocks of oils, other than crude, held for further refining.




ONE of our responsibilities, represented by the Sinclair trade-mark, is to maintain a supply of crude oil which amply protects our sale of refined products. This is done through our affiliated companies, and gives our customers a feeling of security that their orders will be filled promptly.

SINCLAIR REFINING COMPANY

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# SLUGGISH WEEK IN CHICAGO MARKET

## Weather and Filled Tankage Causes Weakness in Gasoline. Burning Oils Redeeming Feature. Kerosene Firm. Fuel Oil Tendency Puzzling. Lubricants Strong and Road Oil Coming to Front

By Ralph T. Baker

CHICAGO, Feb. 4.—Announcement of an advance in the price of the various grades of Mid-Continent crude came as the first really favorable reaction Saturday morning following a week that had been undeniably sluggish, with scarcely any interest displayed by purchasers of petroleum products. The Standard Oil Co. of Indiana announced today that tank wagon would be advanced tomorrow 2 cents and kerosene 1 cent.

Establishment of an additional grade for Mid-Continent oils, making five grades in all, is pointed out as another indication of the growing value of Oklahoma, Kansas and Texas crudes. With the new price range on these five grades from $1.15 to $2.00, Chicago oil men feel that purchasers already have discounted to a large extent the predicted shortage of oil.

Refiners in particular are showing considerable anxiety that the crude oil market be not advanced too rapidly, with the result that soft spots are produced and sags occur in the price structure. They feel that slower, steadier and a constantly firmer crude market will be of more value to the industry than the more spasmodic advances to greater heights, with the accompanying declines.

A survey of the opinions of a number of the leading marketers and refiners in Chicago discloses a fear that a duplication of the disastrous conditions in 1923 may be brought about if well ordered judgment is not made the controlling factor in guiding the advances in crude and refined products. Recent increases in production show refiners that the oil can be produced. They have started to worry about the price.

### Burning Oils Steady

Few bright spots were visible in an undeniably dull market for petroleum products during the past week. The only encouragement was found in the burning oil group, consisting of kerosene, distillate and gas oil, which held steady to prices advanced during the previous week. Lubricants also were fairly steady to the advanced prices, but spreads were reported in the price ranges. Gasolines, natural gasolines, blends and fuel were distinctly dull, if not actually weak.

The fact that jobbers in the Chicago trade territory had filled their tankage to capacity during the past month, was given as the outstanding cause for the sluggish tone during the past few days. The cold weather contributed to a restricted demand for gasoline from the motorist with the result that jobbers who had filled tankage on contracts carried over a large supply on February 1.

Jobbers who were not protected by contracts secured some gasoline from marketers for current needs during the earlier part of January and more recently were enabled to buy from jobbers who had large supplies and could afford to turn marketer pro tempore. The "distress" gasoline, which became noticeable 10 days ago, was in evidence during the past week again and prohibited any strengthening tendencies which might have been brought out. The lack of enthusiasm on the part of the jobbers during the first few days in February was heightened by the fact that many jobbers who had carried a good supply of gasoline during the month, neglected to take their allotments from the refiners until the last moment in January.

Some orders are being taken for February shipments of New Navy gasoline at a price of 11½ cents. Some refiners stipulate in addition the inclusion of one-half the tank wagon advance or decline. Other refiners are asking the flat price. There is no great rush on the part of the refiners for spot business or February business, but some considerable concessions in price for stuff in transit have been reported.

### New Navy Weakness

New Navy in several instances was sold in Chicago during the past week as low as 10½ cents. Sales at 10¾ cents were more common, while refiners still insisted on 11 cents and in many cases secured 11¼ cents. An additional factor toward weakness was shown in the fact that several of the independent refiners who are being pressed for more cash to spend for Oklahoma crude and the necessary premiums, have been reported to have granted slight concessions during the week. This threw considerable material on the market in addition to the supply of stuff in transit, ordered by marketers and brokers.

Few anticipate any marked upward movement for refined products following an advance in tank wagon prices. The advance was anticipated and many shrewd market students believe that a 12-cent tank car price on New Navy will stand "pegged" many days until the spring demand for gasoline is made apparent or other conditions justify revised prices. Others feel that the increased demands from the motorist will be felt long before the official opening of the spring season, and the advance will be started earlier in the year.

The fact that jobbers in the Chicago territory are filled up is again demonstrated by various refiners, who assert that these buyers assuredly would be purchasing supplies in expectation of a tank wagon advance if they had any place to put the stuff. On the contrary, few inquiries have been received from jobbers during the week, and a large part of the reduced business of recent days has been in the hands of brokers and marketers, who have made sales at shaded prices.

### Good Year Expected

Considerable interest is being displayed in the report that a large refiner with a string of filling stations is buying 500 cars of New Navy over February and that another refiner is buying from 200 to 300 cars.

Reports from automobile men who attended the Chicago show have done much to restore confidence of oil men in the bullish aspects of the market, taken in its fundamental aspects. Larger consumption of petroleum is expected from a larger output of automobiles during 1924 and automobiles are expected to be in use more months during the year, as a result of the increase in the output of enclosed cars in 1923 and the anticipated increase from that figure in 1924. Perfection of the smaller, more efficient automobile engine, requiring less gasoline, is expected to come only after months and possibly years of effort. Chicago jobbers are gratified at the progress being made on the new Ford plant in this city, which will put into use a larger number of automobiles in this territory.

Naphtha was still scare and in some cases commanded a better price than New Navy. Most refiners had no naphtha for blending and all available material was accepted quickly with few questions asked. The higher gravity straight run gasolines experienced a retarded demand during the week and as a result they barely held steady to the prices of the previous week. There was a big spread in the Grade A natural gasoline prices, which on the whole showed a weaker tendency during the past week. Other grades were off in sympathy. Blends were a drug on the market in some localities, with extraordinary reduction in price being reported by some marketers. Some distress stuff changed hands at a price less than 10 cents. Most blends brought 10¼ to 10½ cents, however.

### Kerosene Firm

Kerosene led the list with a firm tendency, some sales of the 42-44 water white material being reported at 6⅛ cents. The bulk of the sales were made at 6 cents, with low price on the 41-43 grade at 5¾ cents. A seasonal demand aided by cold weather, old export orders and the demand for distillate for home heaters is given as the cause for this showing made by the burning oils. Straw distillate was steady to the advanced prices and was being used widely for heating. Gas oil was also used by home heating plants to a large extent, but the firmness in this product was attributed largely to the fact that refiners were again using it in their cracking plants to produce Navy gasoline. There was little gas oil available and the average price was 3⅝ cents.

### Fuel Oil Puzzles

Even fuel oil specialists declared that the action of fuel oil had been a "mystery" during the past week. Efforts of marketers and refiners to boost prices in line with recent crude advances met with little success in the Chicago territory, where prices generally were 5 cents lower than on the previous week-end. Lack of demand from industrial plants is given as the outstanding reason for the slump. Refiners report few inquiries for immediate shipment, most buyers asking for quotations over 90 days or a longer period.

Entry of Wyoming 36-40 amber distillate into the northwestern territory is reported recently. Marketers contend that jobbers in that region are favored by price and freight rates in comparison with the Mid-Continent stuff and they anticipate a good demand following the completion of refineries in Wyoming, so that an established trade can be built up and maintained in that region.

### Lubricants Strong

Lubricants, considered as a whole, were firm. The Pennsylvania cylinder stocks were in good demand and in most cases refiners were sold ahead for 60 days or more. Bright stocks were getting good prices and there was considerable interest in developments in that State.

Oklahoma lubricants were firm following the advances posted recently, but big spreads in prices were reported. Bright stocks were getting considerable attention. Gulf Coast oils, while firm, were receiving less attention than the Oklahoma or Pennsylvania oils. The red and pale oils from coastal crude were very firm. Wax was still scarce and strong. Oklahoma lubricants stiffened following the news of the latest crude advance.

Road oil again was coming to the front with county, State and city officials advertising for new work. Two 1,000,000-gallon jobs were let in Illinois recently at approximately $1.25 per barrel. The average price, f.o.b. Group 3, on 50-60 asphaltic content will run about $1.50. El Dorado, Arkansas, stuff is bringing about $1.35-$1.40.

# ADVANCES FEATURE REFINED MARKET IN EAST REFLECTING CRUDE RISE

By N. O. Fanning

NEW YORK, Feb. 4.—Further advances in prices featured the Eastern refined oil markets during the past week. Gasoline was advanced 2½ cents per gallon, tank wagon basis, by the Standard Oil Co. of New York to 20 cents, throughout its territory. The Standard Oil Co. of New Jersey advanced the export gasoline market 1 cent, and kerosene was readjusted in its domestic territory with the exception of New Jersey, the new prices for the most part representing advances of from ½ to 1 cent per gallon.

In addition, local refiners have advanced lubricating oils from 2 to 4 cents per gallon, and wax prices were increased from ⅛ to ½ cent per pound.

Cylinder oils were advanced an average of 4 cents, per gallon, bringing 600 steam refined to 26½ cents, extra light filtered to 40½ and light filtered to 36½. These are refinery prices, quoted in barrels. Red paraffin oils were advanced an average of 2 cents per gallon.

Advances in lubricants and gasoline now amount to approximately 4 cents per gallon in this territory from the low figures reached in 1923. This reflects largely the gain in crude oil prices, especially in those grades produced east of the Mississippi.

It is believed in local refining centers that prices of these products will remain stationary for the present, although further advances are expected later on. The crude situation is said to be approaching a critical stage, and some interests fear a runaway market.

Bunker fuel oil has been advanced 10 cents per barrel by The Texas Co. and Mexican Petroleum Co. The Standard Oil Co. of New Jersey is still quoting the old price of $1.45 per barrel (lighterage 6½ cents per barrel extra) at New York, but it is expected to make an advance next week. It may exceed the 10-cent raise put into effect by the others. In this connection the fact that the company has closed a contract to purchase 10,000 bbls. daily additional oil from the Mexican Seaboard Oil Co. is important, inasmuch as this oil is suitable mainly for fuel oil. This brings up its total takings of Panuco crude from this company to 40,000 bbls. daily.

### Export Market Strong

Continued heavy shipments of oil are reported to foreign markets, but these are largely from the Gulf ports. The only new fixture in the charter market during the week was that of the tanker Hamlet (Nor.) 2,717 tons net, to carry gas oil from a Gulf Port to Europe.

The Standard Oil Co. of New Jersey advanced export gasoline 1 cent per gallon. This brings New Navy gasoline in bulk to 13½ cents, against a low of 10½ last year.

### Strides in Oil Burning

This winter is proving a big one for the companies supplying oil burners for home use in this territory. The Petroleum Heat & Power Co., for instance, reports that it has completed or has under contract 1,000 fuel oil burning units, consuming between 2,500,000 and 3,000,000 bbls. of fuel oil annually. In New York City alone the company has contracts to supply 1,000,000 bbls. of fuel oil per annum.

The bulk of the business in New York comprises installations for large apartment houses and hotels. Practically all of it has been developed since the beginning of 1920.

The strides made in the fuel oil burning for homes, apartments, hotels and similar buildings in such cities as New York, Boston, Providence and Philadelphia indicates that this branch of the oil business has immense possibilities.

### Oil Receipts Greater

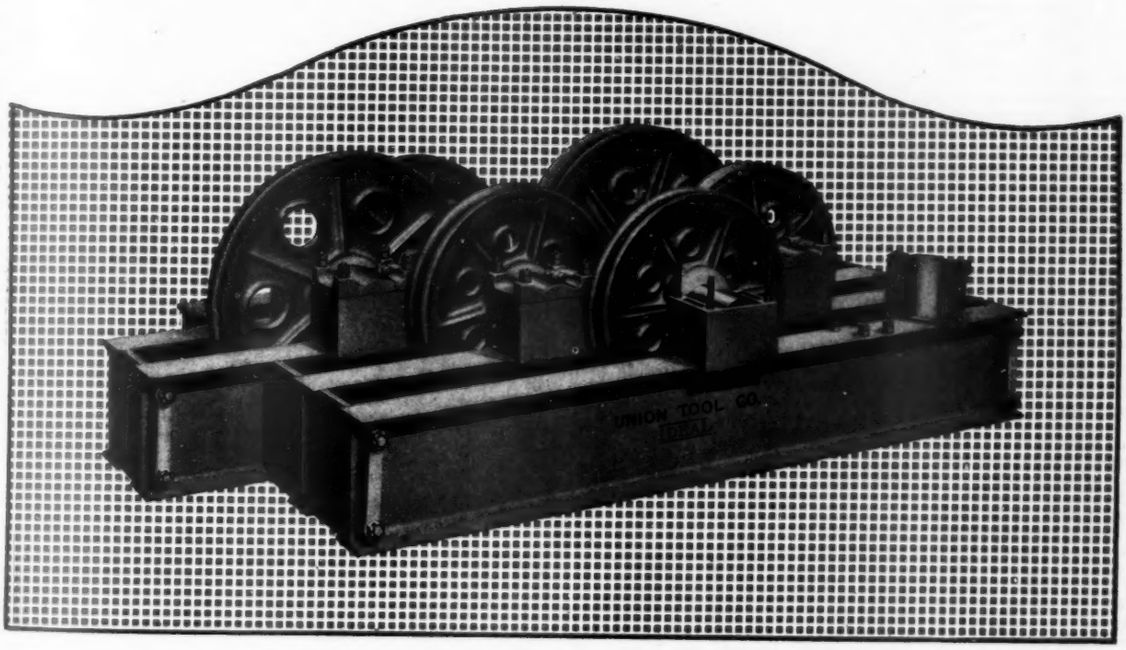
There was a small gain in receipts of crude and refined oil by water at Atlantic ports during the week ended February 1. The daily average receipts are estimated at 409,000 bbls., against 363,000 bbls. the week before. The decline was largely in receipts from Mexico, which averaged only 52,000 bbls. daily, the smallest average in many months. During January daily average receipts from all sources amounted to 363,000 bbls., the smallest in seven months. Receipts from California, however, continued to hold up well, while those from

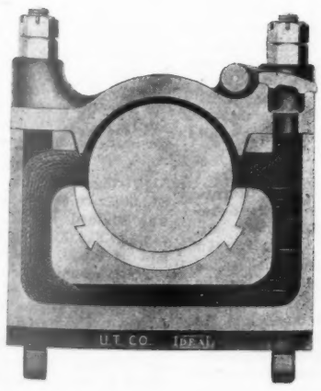
(Continued on Page 108)

# IDEAL

# CROWN BLOCKS

**TYPE C. A.**

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# Cost of Drilling in American Fields

## Wide Variance in Necessary Expenditures According to Proven, or Wildcat Territory, Depth of Hole, Formations and Local Conditions

The cost of bringing an oil well to completion depends upon so many variable factors that it is practically impossible to compute any kind of an average that would serve even as an approximation for all fields. The depth of the sand, the character of the formations that must be drilled through, the kind of fuel available, the experience of the crew, the number of wells previously drilled in the area, as well as many other considerations, including the always important factor of luck, so affect the total cost of the project that the same figures will seldom apply in any two cases except in the proven fields.

Good management plays as important a part in keeping down the cost of drilling an oil well as it does in any other business, so that a hole sunk by a small company with little or no experience may run into higher figures than another under practically identical conditions put down by one of the larger producing companies under scientific management. Wildcats, as a rule, come high, and the first wells in a field usually cost more than those drilled later when contract prices are generally lower and the formations are known. Thus, the early Burbank wells averaged around $40,000, while the cost in that territory now seldom runs much above $30,000. A test recently completed by one of the major producing companies in the Wetumka area totaled $45,000, the drilling contract price being $4 a foot for the 3,500 feet. Later on, the cost in that section may be expected to drop to about $35,000.

### Exceptions to Rule

There are exceptions to this rule, of course, as to all others and in some districts the costs run practically as high now as they did when the fields were first opened up. A well drilled to 3,983 feet in the Blackwell district, Section 4-27-1, by one of the major companies in 1916, totaled $47,000, which is a good average for that field at the present time. In the Towanda district of Butler County, Kansas, a test drilled by the same company in 1917-18 cost $22,675, which is also an average present day price. This well was sunk to the regular gusher sand there at 2,419 feet. Another well that was brought to completion under the difficulties of wartime conditions and prices was a wildcat located in the Yale-Quay district of Oklahoma and drilled to the Bartlesville sand at 3,128 feet. The total cost of $36,026 could not be materially bettered today.

The period of lowest drilling cost perhaps since the petroleum industry became of importance in Oklahoma, was in 1915 and 1916, when the great Cushing Field was contributing more oil than the entire State produced for many years. At that time, an expensive well in Cushing would not come higher than $12,000, due to the cheapness of fuel and the accessibility to water and to the low contract prices. Drillers and tool dressers also were getting only $6 and $7 per day and prices of pipe and other supplies were low in proportion. Comparatively little pipe was used in the wells drilled in Cushing then, and what little the drillers did use was lightweight, another factor which tended to lower the cost. The actual total cost on one well in this area, obtained from the records of a large company, as a representative well, was only $9,500, and the total depth of the hole was 2,575 feet.

### Glen Pool and Cushing

Many wells were drilled with machines in the Glen Pool early in 1916 for less than $4,000. One in particular, which was 1,500 feet in depth, cost $3,817.38. The drilling contract price was 90 cents a foot.

The cost was low in the Cushing and Cleveland Fields in 1916 also. In the former area, a producer from sand at 2,750 feet cost $9,563 gross, with a recovery of $1,370. It was also drilled with a machine, the price per foot being $1.50. In the Cleveland area, a well drilled with standard tools came to only $9,143 81 and the recovery amounted to $406.57. The rig on this well cost the company $1,100, and 40 feet of 12-inch casing added $93.20. The 450 feet of 10-inch pipe cost $625; 750 feet of 8-inch $795; 2,250 feet of 6-inch, $1,620. In estimating the costs at that time, about $500 was included for unforeseen expense.

Back in 1919, when wartime prices still prevailed, an average well to the 2,000-foot sand in the Hewitt Field, according to the records of one of the large operators, cost $23,000, drilled with a rotary. Of this amount, $2,500 was for the rig; $4,000 was for casing and $12,000 was for the drilling contract at $6 a foot. In the Duncan Field, a well could be put down at the same time for a little less money, although drilled 200 feet deeper, as the drilling contract price was only $4.50 a foot and the necessary investment in casing was only $3,000, the total cost of equipment running around $6,500 and the entire cost of the 2,200 feet being about $22,000. In the Pershing Field, during the same year, the expense involved in a 2,100-foot well by this same company, was only $17,000, the largest item of difference having been the drilling contract which was at the low figure of $2 a foot. The casing required was valued at $4,500 and the rig at $2,200, the equipment totaling $6,700 In the same year, however, this company put down a dry hole in the Covington district that cost $48,000. While the depth was only 2,500 feet, the drilling contract price was $5 a foot, making that item alone, $12,500. The largest item of expense was the casing in this well which ran up to $18,000, and the rig was also expensive, costing $4,800.

### Wildcats More Costly

Wildcats are nearly always costly as the conditions under which they are drilled are usually to the disadvantage of the driller and it is often extremely difficult to obtain an uninterrupted supply of water and fuel, resulting in many unforeseen mishaps and shutdowns. The desire to study the formations through which the bit passes and to keep an accurate log often requires that the hole be drilled dry, slowing up the speed considerably. Such was the case with a test hole sunk in Section 26-4-12, Pittsburg County, by a large company in 1917. Although the hole was carried to a depth of only 2,960 feet, it cost the company $102,000, while it is estimated that the same hole could be put down with a rotary today for approximately $20,000. The principal reasons for the excessive cost were the necessity for carting fuel from a considerable distance, and the fact that the test was located in the red bed country and the hole was drilled dry The same company had another costly failure in the same year that would probably have changed the history of northern Oklahoma had it been located just about half a mile to the east. It was in Section 17-24-1, Noble County, and missed the great Tonkawa Field by less than half a mile. This hole was drilled to 3,397 feet and like the other, was carried dry in order to test all sands. Fuel for this wildcat also had to be trucked, which was another factor in raising the total cost to $72,500. The cost of a well to the 2,600-foot Tonkawa sand today is just about half that amount, averaging $37,500, drilled with a rotary.

### Costs at Wewoka

A wildcat located in the area north of Wewoka in Seminole County, required the expenditure of $50,000 before it was completed, although the material recovered from it returned about $6,000 of this amount. It was located in Section 15-10-8, and went to 3,500 feet before it was abandoned as dry. Casing for this test cost $21,000 and the rig, $3,750. Other equipment added $1,250 to the total, and the drilling contract called for $4 a foot. Incidental expenses, fuel and water, teaming, labor, etc., made the total drilling cost alone, $24,000 which, added to the equipment, brought the final figure to $50,000.

A specimen well in the Wewoka Field drilled to the 3,050-foot sand during 1923, cost $38,000, according to the same records mentioned above. Of this amount $3,500 was for the rig; $19,000 was for casing and $20,000 was for drilling, including the contract at $4 a foot. Recovery amounted to approximately $4,000. In the Tonkawa Field, only $9,000 worth of equipment was needed to put down a well to the Upper Hoover sand at 1,800 feet last year, while the contract called for $7 a foot. Other expenses brought the total figure to $30,000. The Lower Hoover sand at 2,100 feet, could be reached at an average cost of $33,000, the necessary equipment being about the same, while the drilling contract came a little higher, at $7.50 a foot, making the actual drilling cost around $24,000 and the total, with equipment, $33,000. The Tonkawa sand at 2,600 feet called for about $10 000 worth of equipment, including $6,000 for casing, and the drilling contract could be obtained for the same price as the Lower Hoover, or $7,50 a foot, making a total cost of $37,500. These prices in the Tonkawa Field are based upon rotary equipment from which there is practically no recovery as the pipe is cemented in the well.

In the Depew area, during 1923, the records show that a representative well to the 4,000-foot horizon necessitated the outlay of $45,000 less recovery. The rig in this case cost $3,850, while $20,000 was paid for pipe, making the total equipment nearly $24,000. The drilling contract at $3.50 a foot came to $14,000. Recovery amounted to $5,000.

### Burbank Figures

In the Burbank, the total cost of $30,000, which was a good 1923 average, was divided as follows: Rig, $3,500; casing, $14,000; drilling contract, 3,000 feet at $3.50, $10,500; fuel, water, and miscellaneous pipe and fittings, etc., $2,000. Recovery of big pipe from these wells would reduce this amount by about $6,000.

In Greenwood County, Kansas, where the drilling contract last year was only $1.75 a foot, an average 2,200-foot well cost about $22,000. Of this amount, $9,000 was required for casing, and $3,000 for other equipment. Drilling expenses supplied the other $10,000. About $2,000 worth of equipment could be recovered. Cowley, Elk and Sumner County wells as a rule came a little higher during the same period, because of the water sands that made it necessary to run six strings of pipe, from 16-inch to 5-inch, inclusive. Equipment, there-

(Continued on Page 131)

## SAFETY CAMPAIGN IN OIL FIELDS URGED BY U. S. BUREAU OF MINES

WASHINGTON, D. C., Feb. 4.—Industrial accidents in the California oil fields represent a gross loss of nearly $1,000,000 a year to the oil industry, according to the Department of the Interior, which, through the Bureau of Mines, is conducting a study of the subject. The figure given does not include the additional large amount lost through decreased work resulting from the disorganizing effect which accidents have on the workers.

According to H. C. Miller, associate petroleum engineer, Bureau of Mines, who is making this statistical study, 14.17 per cent of the accidents to oil workers, resulting in 29.38 per cent of all the time lost because of accidents, were caused by the machinery at drilling and producing wells. A detailed survey shows that 39.34 per cent of the accidents, causing 54.27 per cent of the total number of days lost through injuries, were sustained by the drilling crews engaged in drilling operations. In terms of days lost, pumpers and oilers come next, though field roustabouts and laborers rank second as regards the number of accidents.

As a source of accidents, heavy lifting and straining closely follows the machinery at drilling and producing wells, though falls of persons caused the loss of more than four times as many days, due largely to the serious character of the accidents resulting from falls of workers from derricks and derrick ladders.

An average of slightly more than 3 per cent of the total days worked by the employes of nine out of ten companies whose records were studied by the Bureau of Mines were lost on account of injuries received during the course of employment.

### Much Time Lost

In all 4,108 tabulatable accidents causing disability lasting longer than the day of injury and resulting in a total loss of 274,829 days, occurred during the years 1921 and 1922 to the employes in the drilling and producing departments of the ten oil companies whose reports were available for this study. This number represents approximately two-thirds of all the lost time accidents met with in the oil fields of California during 1921 and 1922, which are fairly representative of the accidents occurring in the oil fields of California.

The progress of the "safety first" movement in the oil fields of California during the past few years has been remarkably rapid, Mr. Miller points out, in Serial 2557, just issued by the Bureau of Mines. It has been generally conceded by those who have learned to value the life and limbs of their employes, that safety is essential to efficiency and no company that has a high accident rate can be considered an efficient organization. Accidents have a destructive effect on the morale of any body of workers and cause disorganization and delays.

The increasing danger to life and limb involved in the drilling for and the production of oil and gas has become so great that it is clearly evident that everything possible must be done to keep it within the narrowest possible limits.

There is a tendency toward carelessness, especially by men who are employed in hazardous occupations. This

(Continued on Page 129)

# Redmond Says This Swab "Can't Be Beat!"

## *Does 90% of Swabbing in Powell Field*

A. M. Redmond, Field Superintendent of the McMan Oil Company, at the Powell, Texas, Field, is one of the many users of GUIBERSON Swabs at Powell. Approximately 90% of all swabbing being done in this important field is now being done with GUIBERSON Swabs.

Mr. Redmond states that the GUIBERSON Swab is not only the one swab that is correct in principle, but that they find it remarkably durable.

In the background, above, is shown one of the McMan Company's long-stroke pumpers. This well has a 12-foot pump stroke, and produces on the pump 45 to 60 barrels an hour.

The GUIBERSON Swab is fully patented. See your supply house for full information.

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**Box 1106, Dallas, Texas**
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GUIBERSON

BETTER BE SAFE THAN SORRY

# Exploring Montana Cost Vast Sum

## Estimated That 702 Completed Wells There Cost $18,000,000 and 384 Holes Were Dry. Many Disappointed in Development

Special Correspondence

BILLINGS, Mont., Feb. 4. — The amount of money that has been spent in acquiring leases and oil properties and in completing wells in Montana will perhaps never be definitely known, but it is permissible to place what is intended to be a conservative estimate on it and call it no less than $18,000,000.

Taking a list of all the completed wells of which The Oil and Gas Journal's correspondent can find a record and adding the total depths we get approximately 1,250,000 feet of hole drilled, resulting in 276 oil wells, 42 gas wells and 384 dry holes, a total of 702 completions, averaging 1,781 feet in depth. The reports on the depths of some of the wells had to be estimated because there was no assurance of the accuracy of some of the logs, but this fact would not materially change the total of footage above given.

Leaving out the tremendous waste caused by the inexperience of some of the operators and men in charge and coming down to a basis of what it would have cost a single big, well established company, manned by experience and with a record of operating economy, to have done all the drilling thus far brought to completion in Montana it would not be out of the way to say that the 1,250,000 feet of hole would average $10 a foot, all cost items being included and making allowance for salvage. Add to this an additional $5 per foot for bonuses, rentals and other land and leasing expenses and we have a total of $18,750,000. This does not include the investment in the more than 160 operations still carried as drilling wells, scattered through the State. Neither does it include the investment in the refining branch of the business, nor the pipe line and storage investment.

### What Montana Has to Show

Eighteen million dollars would mean an average of over $25,500 per well and when we let our minds run over the wildcats that have been drilled and recall here and there the $100,000 failures such an average as that given seems low and the estimate of $18,000,000, a conservative figure.

Now what has Montana to show for this tremendous outlay?

It produced from 1916 to 1923, inclusive, 7,197,234 bbls. of oil.

It has a potential production of approximately 10,350 bbls. a day, but is not producing that quantity at this time.

It has 276 oil wells, 42 gas wells with a total production of 98,500,000 feet and 384 dry holes.

In the Kevin-Sunburst Field are 116 oil wells, and of these about 100 actually produce oil, the others having no pipe line connections and being regarded as small wells of short life if they were put on production daily. It has 9 gas wells with a daily production of 18,000,000 feet. It has had 74 dry holes and there are 27 wells still classified as drilling. The potential daily production is around 3,700 bbls. a day.

Cat Creek has 145 oil wells, no gas wells, 61 dry holes, 4 drilling wells and a potential production of 5,230 bbls.

The remainder of the State has a total of 15 oil wells, producing 1,320 bbls. a day, 33 gas wells with a production of 80,500,000 feet and 249 dry holes.

### Land of Promise a Year Ago

One year ago Montana was regarded by some very conservative oil men of large experience and usually good judgment as a menace to the industry. The Sweetgrass Arch especially was looked upon with fear and trembling because it was thought to be a storehouse of oil such as the world had never known. With the big fields of California on the ascendancy and Oklahoma adding each month to its production the outlook for a record-breaking production in 1923 was plain enough; therefore, what might happen to the producing end of the business and the industry generally when Sweetgrass began pouring out its treasure kept some oil men lying awake nights.

The big companies "fell" just as hard as the little ones, and it was partly because organizations like the California Oil Co., Ohio Oil Co., Carter Oil Co., The Texas Co., Gypsy Oil Co. and others were so confident of the merits of Montana in general and of Sweetgrass Arch in particular that small investors listened to the siren song of stock promoters and "came on" with their money from all parts of the United States and Canada, but particularly from the northwestern States. Some of the promotion companies put on a program similar to that which sent the Fort Worth crowd of confidence men to jail, and the pickings were good.

Shelby, the center of the Kevin-Sunburst Field, became a boom oil town. Operations were started on every side and the work of developing what was expected by many to be America's biggest oil field was started. It was not until late in the summer that the realization came that the Sweetgrass country as an oil field had been defined and that outside of the small area comprising the Kevin-Sunburst Field it was a greater area than the Kootenai. The oil from both is about 35 degrees gravity and contains some sulphur. The few big wells in the field are believed to have produced from crevices in the limestone. This field up to December 31, 1923, had produced all told about 750,000 bbls. of which perhaps 550,000 bbls. has been run by the pipe lines. The balance went for fuel and to skimming plants in the field. The field on its record has not justified its development cost.

### Cat Creek Field

The Cat Creek Field in Fergus County is made up of three non-contiguous pools: the east and west domes and west extension. Only the west dome, located in Section 9 to 14 inclusive, in Township 15n-29e, and 800 acres in producing area, is important as to production. The east dome is in Sections 16, 17, 20 and 21-15n-30e, 325 acres, in producing area. The first well was completed in the southwest corner of the southeast, northwest, Section 21-15n-30e, with a 50-bbl. initial production. Subsequent drilling on other domes found them dry with the exception of the west dome, and there the Cat Creek Field proper was opened.

There are two producing horizons in Cat Creek, the Dakota, average thickness 50 feet, and the upper Kootenai, 40 feet thick. No production has been found in the lower Kootenai. It is valuable in that it produced a much needed supply of fresh water, used in the camp and for drilling.

The first sand on top of the east dome is at 850 feet and upon the west dome at 1,100 feet. The second sands are at a depth of 1,000 and 1,200 feet respectively. East dome production is limited to the second sand and is of little importance. Fifteen successful completions were made on this dome but water forced the abandonment of a few of these.

The average initial production of Cat Creek wells was less than 400 bbls., with a minimum of 50 bbls. and a rare maximum of 2,000 bbls. The 146 wells drilled showed an initial production of 51,000 bbls. When the field was three years old it was producing 6,000 bbls. and it now is down to 5,230 bbls. Practically all the development took place in the first three years.

### Drilling Progress

Within and just outside the field 208 wells have been drilled, of which 62 were absolutely barren and a few oil wells turned to water.

The productive wells in Cat Creek now number 134, of which 79 are in the upper and 55 in the lower sand.

Frank Frantz drilled the only deep hole in this region, selecting the northeast corner of the southwest quarter of Section 27-15n-30e for the test and completing at 3,105 feet. Four sands were found of which anything definite may be said—the first at 1,150-60 feet, containing a showing of oil; second at 1,235-1,325 feet, producing 10,000 bbls. of water; third at 1,435-55 feet, presumably dry, and fourth at 1,920-55, which developed a light show of oil. Below the last sand lime and shale, the latter predominating, were found, and the hole ended in 20 feet of white chalk or gypsum.

On the west extension two oil wells were drilled but not only were the offsets dry but five other wells, drilled farther out, were barren. The first producing well was in the northeast corner of Section 12-5n-28e. It came in in May, 1923, with an initial production of 200 bbls. The California Petroleum Co. bought it, together with 480 acres of leases, for $600,000. This and its subsequent drilling investment was money mostly thrown away. The second oil well was two locations west of the first. It started at 100 bbls. The wells together are now producing 100 bbls. a day or less. The oil was found in the Second sand at about 1,725 feet.

### High Gravity Oil

Cat Creek oil is of unusually high gravity, ranging from 48 to 52 degrees, with a 65 per cent gasoline content. The wells flow from water pressure. Most of them are now pumping. The continuous natural flooding of the sands precludes the "stripping" of the production. When a well produces its oil it goes to water and is finished. From January 1, 1921, to January 1, 1924, the pipe lines handled about 5,800,000 bbls. The total production of the field has been a little over 6,000,000 bbls. counting the oil used for fuel and that handled by the now defunct Montana Independent Pipe Line Co. in the early days of the field.

### Soap Creek Pool

The Soap Creek Pool is located on the Soap Creek anticline, which begins in Township 7s, Range 33e, in Montana, and progresses northwest, ending in Township 6s and Range 32e, 17 miles in all, in Big Horn County. There are three domes outlined upon its axes, Rotten Grass Dome, South Soap Creek Dome, which is very small and has not been tested, and Soap Creek Dome proper. This includes Sections 27, 28, 33, 34-6s-32e. There are six wells in the field producing oil of low quality and 20 degrees gravity, with about 15 per cent or less of gasoline content and sulphur as high as 3.7 per cent. The remainder of the content is asphalt, which turns to gum when exposed a sufficient length of time. The only market for the oil is for fuel at drilling wells in that part of the State to which it is conveyed in trucks. The Western States Development Co., a Midwest subsidiary, believes money can be made in developing Soap Creek, providing a market can be made for oil of the quality produced there. Oil has shown in all the Quadrant sands. There is a question as to which of the sands produces in quantity, some saying it is Tensleep, others believing it to be Amsden. The sand varies from 8 to 25 feet in thickness. There is no gas.

### Elk Basin, on the Border

The Elk Basin Field is usually classed as a Wyoming Field, but as it lies on the Wyoming-Montana line we will take it into consideration as interesting in reviewing South Central Montana.

The pool is located in Sections 19 and 30-58n-99w and Section 24-58n-100w, in Wyoming, and in Sections 34 and 35-8s-23e, in Montana. It was opened in 1915. The Midwest, Ohio and Mutual Oil companies have become possessed of the best of the acreage since that time. Oil

(Continued on page 102)

View of Shelby, Mont., showing hills near town

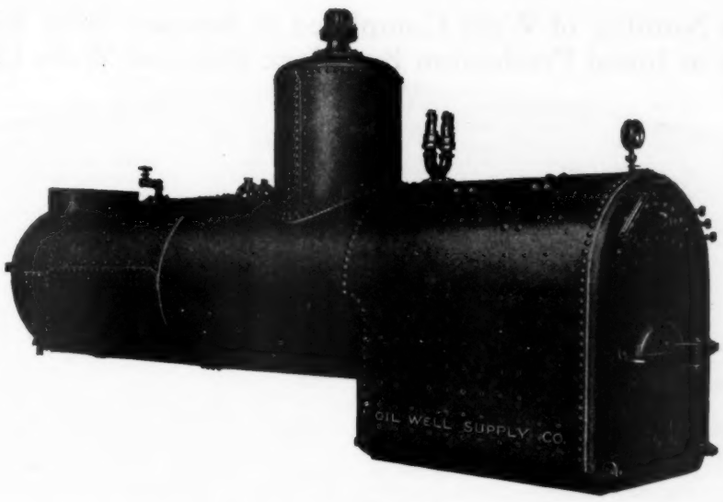
Febr

d'sappointment. In the Kevin-Sunburst Field in Toole County, a few wells were completed with relatively large initial production, one for 2,400 bbls.; others for 2,000 bbls., 1,545 bbls. and 1,000 bbls., respectively, but these were exceptions. Most of the oil wells were small and every drilling well in the field was a gamble.

Before winter set in the Kevin-Sunburst Field was nearly deserted, save for those who were engaged in necessary work in the field, and the crowd is not expected back. The bubble has burst.

### Kevin Field Prospects

A circle 6 miles in circumference, with Township 35n-2w as the center, would take in all the Kevin Field, and a part of this inside territory is dry. Gordon Campbell and others drilled the first producing well in Section 16-35n-3w, finding oil in the Ellis sand at 1,771-90 feet on March 14, 1922. This well, long since abandoned after having been deepened to 2,575 feet, started the rush. The Ohio, California, Mid-Northern, Carter, Gladys Belle and other reputable companies spent much money in acreage and followed it with a development campaign. The California company invested enormously. Production was found in the Kootenai sand in Sections 34 and 35-36n-2w and in Sections 1, 2 and 3-35n-2w. The Ellis sand, in a limestone formation, was found productive over a




# A. S. M. E. CODE BOILERS

Ten of the twenty-two "Oilwell" A. S. M. E. Code Boilers recently delivered to Mid-West Refining Company at Salt Creek, Wyoming.

A. S. M. E. Standard "Oilwell" Oil Country Boilers are constructed in strict accordance with the Rules of the Boiler Code Committee of the American Society of Mechanical Engineers, which requires that all materials be subjected to chemical and physical tests.

They are built for a working pressure of 150 pounds, using a factor of safety of five, and are made absolutely tight under a hydrostatic pressure of 225 pounds.

Each boiler is designed especially to obtain the maximum in steam space and water capacity, the horse power rating being based on 12 square feet of heating surface.

All operations during construction and also the final test are carefully inspected by an inspector who has been examined and licensed for such work by States having the A. S. M. E. Boiler Code in operation. This inspector is not in our employ but is employed by a company making a business of furnishing such inspectors.

All boilers upon completion carry a stamping in accordance with the Code.

"Oilwell" Oil Country Boilers are made in various sizes from 25 to 100 H. P., and in locomotive and tubular (A. S. M. E. Code), Burma and Canadian, and regular oil country locomotive types. For complete information write for Bulletin No. 41.

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# OILWELL SUPPLY CO

***World's Largest Manufacturers of Oil Field Equipment***

# New Work in Oil Fields Shows Increase

## Less Number of Wells Completed in January With Big Decline in Initial Production But More Rigs and Wells Drilling

### SUMMARY OF ALL FIELDS

**Wells Completed**

| Fields— | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Eastern | 259 | 576 | 45 | 79 |
| Lima | 31 | 641 | 4 | 2 |
| Indiana | 18 | 559 | 6 | 1 |
| Central Ohio | 59 | 43 | 17 | 31 |
| Kentucky-Tennessee | 60 | 568 | 17 | 7 |
| Illinois | 2 | 35 | 1 | 0 |
| Kansas | 37 | 1,045 | 17 | 7 |
| Oklahoma | 236 | 32,764 | 62 | 46 |
| North Texas | 165 | 11,693 | 64 | 4 |
| East Central Texas | 48 | 11,573 | 7 | 1 |
| Louisiana-Arkansas | 126 | 11,439 | 22 | 19 |
| Gulf Coast | 71 | 16,990 | 17 | 5 |
| Wyoming-Mississippi | 39 | 7,970 | 0 | 0 |
| Total January | 1,133 | 95,896 | 279 | 202 |
| Total December | 1,325 | 151,304 | 353 | 219 |
| Difference | 192 | 55,408 | 74 | 17 |

**Rigs and Wells Drilling**

| Fields— | Rigs | Drg. | Total |
|---|---|---|---|
| Eastern | 173 | 325 | 498 |
| Lima | 3 | 35 | 38 |
| Indiana | 0 | 21 | 21 |
| Central Ohio | 33 | 115 | 148 |
| Kentucky-Tennessee | 5 | 207 | 212 |
| Mississippi | 2 | 19 | 21 |
| Alabama | 0 | 11 | 11 |
| Georgia | 1 | 3 | 4 |
| Florida | 5 | 9 | 14 |
| Illinois | 5 | 15 | 20 |
| Kansas | 66 | 134 | 200 |
| Oklahoma | 255 | 1,085 | 1,340 |
| North Texas | 86 | 220 | 306 |
| East Central Texas | 15 | 104 | 119 |
| Louisiana-Arkansas | 101 | 294 | 395 |
| Gulf Coast | 97 | 274 | 373 |
| Wyoming | 87 | 332 | 419 |
| Montana | 19 | 158 | 177 |
| Utah | 1 | 25 | 26 |
| Total January | 956 | 3,386 | 4,342 |
| Total December | 823 | 3,206 | 4,029 |
| Difference | 133 | 180 | 313 |

**The stimulus of recent advances in the posted prices for crude in all sections of the United States is seen in the report of field operations for January which shows an increase in new work although the number of wells completed was less than for December. The amount of initial production of the completions in January recorded a very material drop from the December figures, the decrease amounting to 55,408 bbls.**

### OKLAHOMA FIELDS

**Summary of Wells Completed**

| County— | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Washington-Nowata-Rogers | 0 | 0 | 0 | 0 |
| Osage | 39 | 9,787 | 6 | 11 |
| Tulsa | 17 | 685 | 7 | 3 |
| Okmulgee | 27 | 1,700 | 11 | 3 |
| Okfuskee-Hughes-Seminole-McIntosh | 19 | 2,270 | 5 | 6 |
| Muskogee-Wagoner | 10 | 200 | 4 | 2 |
| Creek | 26 | 1,677 | 4 | 7 |
| Pawnee | 11 | 980 | 2 | 1 |
| Payne | 2 | 200 | 1 | 0 |
| Kay | 15 | 5,035 | 2 | 3 |
| Garfield-Noble | 12 | 2,108 | 1 | 2 |
| Carter | 27 | 5,212 | 3 | 2 |
| Stephens-Cotton | 14 | 75 | 6 | 3 |
| Miscellaneous | 17 | 2,835 | 10 | 3 |
| Total January | 236 | 32,764 | 62 | 46 |
| Total December | 277 | 27,795 | 95 | 36 |
| Difference | 41 | 4,969 | 33 | 10 |

**Summary of New Operations**

| County— | Rigs | Drg. | Ttl. |
|---|---|---|---|
| Washington-Nowata-Rogers | 0 | 0 | 0 |
| Osage | 46 | 165 | 211 |
| Tulsa | 6 | 40 | 46 |
| Okmulgee | 14 | 54 | 68 |
| Okfuskee-Hughes-Seminole-McIntosh | 18 | 99 | 117 |
| Muskogee-Wagoner | 6 | 15 | 21 |
| Creek | 23 | 82 | 105 |
| Pawnee | 7 | 28 | 35 |
| Payne | 2 | 7 | 9 |
| Kay | 67 | 159 | 226 |
| Garfield-Noble | 14 | 91 | 105 |
| Carter | 12 | 113 | 125 |
| Stephens-Cotton | 3 | 17 | 20 |
| Miscellaneous | 37 | 215 | 252 |
| Total January | 255 | 1,085 | 1,340 |
| Total December | 194 | 996 | 1,190 |
| Difference | 61 | 89 | 150 |

**The lifting of the Burbank shutdown agreement on January 10, along with the general tendency to resume drilling, is easily noticeable in the summary of new operations for January. The number of rigs listed in the December report was 194, while there were 255 rigs in place last month, an increase of 61. The number of drilling wells also showed an appreciable gain, the total for January being 1,085 in comparison with 996 for the month before, an increase of 89, and the total of new operations, 1,340, was 150 greater than December's total. The extent to which this difference is attributable to Burbank may be seen by comparing the figures of Osage and Kay Counties for the two months. In December, Osage County reported 35 rigs, while in January it was credited with 46. And Kay County had 10 rigs as the old year passed out, while the January figures for that county were 67. In drilling wells, Osage County increased during the month from 126 to 165, and Kay County jumped from 115 to 159. Okmulgee slumped a little from 82 to 68 in total operations, and Tulsa County gained 10, the other districts remaining practically the same as during December.**

**The month's completions were less by 41 than the number finished during December, although the initial production was greater by 4,969 bbls. Of the 236 wells completed in January, 62 were dry holes and 46 were gas wells, in comparison with 95 dusters and 36 gassers during December. Out of the month's 236 completions, then, 128 were producing oil wells and contributed 32,764 bbls. to the State's initial production. The Burbank revival was in evidence in production as well as new work, Osage County jumping from 5,215 bbls. in December to 9,787 bbls. in January, and Kay County from 1,843 bbls. to 5,035 bbls. Activity in the Hewitt and Graham districts of Carter County caused a gain in that county from 3,537 to 5,212 bbls. The decline of the Tonkawa Field and of Wewoka can be seen in the fall of Garfield-Noble Counties from 5,793 to 2,108 bbls., and the slump of Okfuskee-Hughes-Seminole-McIntosh Counties from 3,980 to 2,270 bbls. Okmulgee County declined sharply from 4,370 bbls. to 1,700 bbls. in January. The miscellaneous counties produced 2,835 bbls. of new production last month in contrast to none during December, but the other counties remained practically the same.**

**With the complete opening of the Burbank extension, and with further hikes in the price of crude confidently predicted, the figures may reasonably be expected to increase during the coming months.**

### KANSAS FIELDS

**Summary of Wells Completed**

| County— | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Butler | 3 | 10 | 2 | 0 |
| Montgomery-Wilson-Neosho-Anderson | 0 | 0 | 0 | 0 |
| Miami-Franklin-Anderson | 0 | 0 | 0 | 0 |
| Greenwood-Woodson | 16 | 725 | 7 | 1 |
| Marion | 2 | 0 | 2 | 0 |
| Chautauqua-Elk | 7 | 70 | 3 | 3 |
| Miscellaneous | 9 | 240 | 3 | 3 |
| Total January | 37 | 1,045 | 17 | 7 |
| Total December | 32 | 745 | 16 | 6 |
| Difference | 5 | 300 | 1 | 1 |

**Summary of New Operations**

| County— | Rigs | Drg. | Ttl. |
|---|---|---|---|
| Butler | 2 | 15 | 17 |
| Montgomery-Wilson-Neosho-Allen | 0 | 1 | 1 |
| Miami-Franklin-Anderson | 0 | 0 | 0 |
| Greenwood-Woodson | 38 | 45 | 83 |
| Marion | 8 | 5 | 13 |
| Chautauqua-Elk | 3 | 5 | 8 |
| Miscellaneous | 15 | 63 | 78 |
| Total January | 66 | 134 | 200 |
| Total December | 46 | 134 | 180 |
| Difference | 20 | 0 | 20 |

**General field conditions throughout Kansas showed some signs of improvement during January, although the gains in initial production and total of new operations were not of great proportions. They may be taken as indications, however, of a noticeable renewal of activity that should take place as soon as weather conditions permit. Kansas operators are demonstrating their intentions to give the newly discovered wildcat areas in Russell, Greenwood, Cowley, Sumner and Elk Counties, rather thorough tests in the near future and the effect of the feeling of optimism that prevails over the southern and middle western districts should be more apparent during the next few months.**

### EAST CENTRAL TEXAS

**Summary of Field Operations**

| County— | Comp. | Prod. | Dry | Gas | Rigs | Drg | Ttl. |
|---|---|---|---|---|---|---|---|
| Navarro | 48 | 11,573 | 7 | 1 | 5 | 40 | 45 |
| Limestone | 0 | 0 | 0 | 0 | 4 | 4 | |
| Miscellaneous | 0 | 0 | 0 | 0 | 10 | 60 | 70 |
| Total Jan. | 48 | 11,573 | 7 | 1 | 15 | 104 | 119 |
| Total Dec. | 117 | 80,187 | 37 | 2 | 13 | 144 | 157 |
| Difference | 69 | 68,614 | 30 | 1 | 2 | 40 | 38 |

**The total initial production of the 40 oil wells completed in the Powell Field in Navarro County in the period covered by the January detailed report of operations was only 11,573 barrels, or an average of 239 barrels per well. In the month of November, when Powell was at its best the average initial production per well was 3,463 barrels. That shows how Powell has fallen from its high place. In January only three wells that started off as high as 1,000 barrels were reported.**

**The settled production of Powell was holding up well and was close to 95,000 barrels at the end of the period in review. The recent discovery of a pay sand between 1,600 and 1,700 feet has given the territory a new aspect and at the close of the month, too late to find a place in this review, there were several shallow wells started, the locations being made between the derricks of the deep wells. Big production is not expected in these shallow wells but if the production zone extends far it may tend to keep Powell production from falling for a long time as the deep sands away from the edges of the field give promise of yielding long and steady production on the pump, and if supplemented by the quickly drilled shallow wells Powell may hover around the 100,000-barrel mark for a considerable period. However, this is based on the assumption that the shallow sand is more than a stray to be found only on a few favored properties.**

### NORTH LOUISIANA-SOUTH ARKANSAS

**Summary of Field Operations**

| Districts— | Comp. | Prod. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Smackover Dist., Union County | 33 | 5,410 | 5 | 2 | 33 | 92 | 125 |
| Ouachita Co. | 42 | 5,371 | 0 | 2 | 22 | 77 | 99 |
| Stephens Dist., Columbia and Ouachita Counties | 4 | 125 | 0 | 0 | 9 | 16 | 25 |
| Bellevue | 13 | 391 | 1 | 0 | 2 | 2 | 4 |
| Caddo | 5 | 17 | 3 | 0 | 1 | 10 | 11 |
| Claiborne | 0 | 0 | 0 | 0 | 3 | 3 | 6 |
| De Soto | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| Red River | 1 | 0 | 1 | 0 | 0 | 2 | 2 |
| La. wildcats | 23 | 0 | 8 | 15 | 21 | 48 | 69 |
| Ark. wildcats | 5 | 125 | 4 | 0 | 9 | 42 | 51 |
| Total Jan. | 126 | 11,439 | 22 | 19 | 101 | 294 | 395 |
| Total Dec. | 95 | 12,380 | 15 | 11 | 90 | 166 | 256 |
| Difference | 31 | 941 | 7 | 8 | 11 | 128 | 139 |

**Three advances in the price of crude oil in this territory since December 27 have already had an effect on the drilling activity which has shown a decided increase during the past month, particularly in the Smackover district.**

**Although at the present time there is no market for the Nevada County heavy crude oil a railroad is now being built to that field and when completed operations in that area are expected to greatly increase. The completion of a 125-barrel well last month in this field furnishes ample encouragement to operators expecting to drill these leases in the near future.**

**A slight decline in production is shown during the month with Union and Ouachita counties affording the bulk of the oil. Thirty-one more wells were completed this month than last including all districts. A particularly interesting feature of the month was the completion of 15 gassers in the Louisiana wildcat territory adding 241,500,000 feet of gas to the production of these parishes. An increase of 128 over last month is noted in the number of drilling wells.**

### GULF COAST

**Summary of Field Operations**

| District— | Comp. | Prod. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Batson | 1 | 15 | 0 | 0 | 2 | 1 | 3 |
| Big Creek | 0 | 0 | 0 | 0 | 3 | 3 | 6 |
| Blue Ridge | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| Damon Md. | 2 | 0 | 2 | 0 | 1 | 3 | 4 |
| Edgerly, La. | 1 | 75 | 0 | 0 | 0 | 3 | 3 |
| Goose Creek | 6 | 835 | 1 | 0 | 2 | 16 | 18 |
| Humble | 3 | 20 | 1 | 0 | 0 | 5 | 5 |
| Hull | 9 | 3,650 | 2 | 0 | 5 | 17 | 22 |
| Jennings, La | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Markham | 1 | 0 | 0 | 1 | 0 | 3 | 3 |
| Orange | 9 | 2,655 | 3 | 0 | 5 | 21 | 26 |
| Pierce Jct. | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Saratoga | 1 | 0 | 1 | 0 | 0 | 3 | 3 |
| Sour Lake | 2 | 1,200 | 0 | 0 | 2 | 3 | 5 |
| Somerset | 0 | 0 | 0 | 0 | 3 | 3 | 6 |
| Vinton, La. | 6 | 245 | 2 | 0 | 4 | 7 | 11 |
| W. Columbia | 4 | 425 | 1 | 0 | 0 | 1 | 1 |
| Luling | 8 | 6,300 | 0 | 0 | 5 | 17 | 22 |
| Laredo Dist. | 8 | 400 | 1 | 2 | 3 | 7 | 10 |
| Milam Co. | 1 | 10 | 0 | 0 | 2 | 7 | 9 |
| Live Oak-McMullen | 4 | 1,150 | 0 | 0 | 6 | 12 | 18 |
| Miscellaneous | 5 | 10 | 3 | 1 | 56 | 141 | 197 |
| Total Jan. | 71 | 16,990 | 17 | 5 | 99 | 274 | 373 |
| Total Dec. | 55 | 7,975 | 19 | 2 | 77 | 279 | 356 |
| Difference | 16 | 9,015 | 2 | 3 | 22 | 5 | 17 |

**Completions in the Gulf Coast pools, the Luling, Laredo and Milam County light gravity fields total 71 during the first month of the year, an increase of 16 over December. The new production aggregates 16,990 bbls., a gain of 9,015 barrels over the previous month.**

**The improvement in credit balance quotations is reflected in the increase in rigs, the report showing a gain of 22 during the month compared with December. Wells drilling number 274 against 279 last month.**

**Two advances for Gulf Coast crude were posted during the month. The first was on January 9, when it was advanced 25 cents to $1.50 for Grade "A" and $1.25 for Grade "B." On January 25, the quotation was boosted to $1.65 for grade "A" and $1.40 for Grade "B." The Texas Co. makes no distinction between grades and its quotation is $1.65.**

**Milam County crude is $1.35. Luling is posted at 75 cents, an advance of 25 cents during the month and the Laredo districts have a 75-cent quotation for that product.**

### NORTH CENTRAL TEXAS

**Summary of Completed Work**

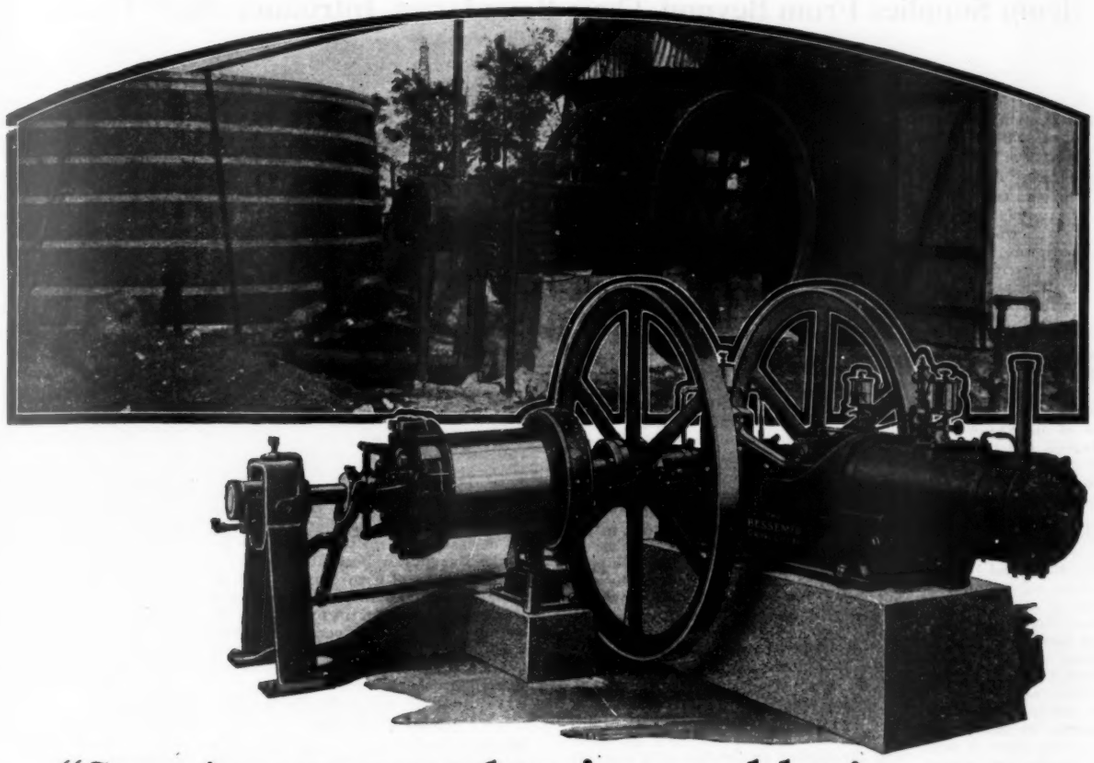
| District— | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Wichita | 20 | 1,146 | 7 | 0 |
| Burkburnett | 14 | 1,617 | 5 | 0 |
| Eastland | 20 | 940 | 5 | 1 |
| Stephens | 15 | 975 | 7 | 1 |
| Young | 16 | 135 | 11 | 0 |
| Archer | 50 | 6,805 | 13 | 0 |
| Wildcats | 30 | 175 | 10 | 0 |
| Total January | 165 | 11,693 | 64 | 4 |
| Total December | 117 | 7,141 | 29 | 0 |
| Difference | 48 | 4,552 | 35 | 4 |

**Summary of New Work**

| District— | Rigs | Drg. | Ttl. |
|---|---|---|---|
| Wichita | 18 | 20 | 38 |
| Burkburnett | 1 | 6 | 7 |
| Eastland | 9 | 19 | 28 |
| Stephens | 13 | 23 | 36 |
| Young | 5 | 17 | 22 |
| Archer | 22 | 69 | 91 |
| Wildcats | 18 | 60 | 78 |
| Total January | 86 | 220 | 306 |
| Total December | 73 | 202 | 275 |
| Difference | 13 | 17 | 30 |

**Operations showed a substantial increase in fields of North-Central Texas during January as compared to December. There were 48 more wells completed while the initial production showed**

(Continued on Page 76)



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BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

# New Problems From World Competition

## Foreign Nations, Striving to Reduce Their Dependence Upon Petroleum Supplies From Beyond Their Boundaries, Introduce New Factor

By Charles E. Kern

WASHINGTON, D. C., Feb. 4.—With estimated world production of crude oil of 1,095,000,000 barrels in 1923, an increase of about 18 per cent over the production of 1922, when the total was 854,809,000 barrels, the conditions of the oil fields became of unusual interest.

As the increase of domestic production was from 557,531,000 barrels in 1922 to an estimated total of 735,000,000 barrels in 1923, or 30 per cent, it will be seen that the source of the surplus of oil was within the United States. Indeed, had the home production remained at the figure of 1922 there could have been an actual decrease in world production to the extent of 28,000,000 barrels. This, of course, resulted from the falling off in Mexican production.

In all of Europe, Asia and South America there have been efforts on the part of leading nations to increase their oil output to gain fuel independence and notable increases have been registered.

These world increases resulted in an over supply of petroleum products, a lowering of world price levels and a general depression throughout the industry. This situation, in the opinion of many observers, was largely a culmination of conditions brought about by the high prices prevailing during the war and the consequent efforts for production carried on since that time, and occurred in spite of the steady growth of petroleum consumption and the phenomenal decline in the Mexican output. The increases in Peru, Persia, Poland and Rumania were largely the results of normal growth, however, and did not tend to influence world trade to any great extent.

### Upturn Under Way

There appears to be good reason to expect that during the present year world consumption of petroleum products will go forward, and that the consumption and production curves will draw together, with an improvement of price levels and a general stabilization of the industry. Recent reports indicate, in fact, that the upturn has already set in.

Highly competitive conditions have prevailed during the year, both in the marketing of petroleum products and in efforts to secure control of future production Intense competition in marketing has served to force retail prices in some countries, notably in western Europe, below world levels, and this appears to constitute one of the important problems facing this phase of the industry. Efforts to obtain control of undeveloped petroleum deposits have resulted in the increasing importance of petroleum matters in international relations.

During 1923 interest has been aroused in the wider utilization of these products in general, in the growth in the use of motor fuels other than straight gasoline, and in the installation to a larger extent of facilities for handling oils, particularly gasoline in bulk. Reports of new motor fuels have been continually received from many countries, and this question appears to be of increasing importance. As an example of this tendency is the legislation recently passed in France, requiring a certain quantity of alcohol to be purchased by importers of gasoline. The installation of facilities for retailing gasoline in bulk is reported to have resulted in a marked decline in retail prices in some markets, especially at interior points in certain continental countries. Refining facilities in a number of countries were also improved and new construction undertaken during the year.

### In Latin America

In Latin-American countries generally, development work was actively carried on in 1923 and will doubtless continue during the present year. New flush production obtained in Venezuela stimulated activities in that country and several large interests not previously represented entered the field during the past year. Activities planned for the coming year include improvements to the existing refinery plants, extension of pipe lines and storage facilities, etc., in addition to continued exploration and drilling. Some new production was reported. One event which aroused considerable interest was the exercising of the option held by an American company for the development of a portion of the Venezuelan properties included in the concession of the British Controlled Oilfields, Ltd. A number of cargoes of Venezuelan oil were shipped to the United States, the bulk of the output being refined at Curacao, however. Importation of refined products was reported as increasing, the local refining plant being insufficient to supply domestic demand.

Two outstanding events in the oil industry of Colombia were the passage of Law 14 of 1923, dated January 31, which amends the hydrocarbon law of 1919, and the signing on October of a contract between the Government and the Andian National Corporation, Ltd., for the construction of a pipe line along the Magdalena River to the Caribbean. As the question of transport is of great importance in such countries as Colombia, the proposition for the construction of such a pipe line as that contemplated is of especial interest.

Increased crude oil production is reported from Peru and Ecuador, and the past year was marked by the entry of a number of new companies in oil exploration; and there is said to have been considerable activity in the leasing of oil lands. Prospects are said to be favorable for continued growth of the industry in these countries.

### Argentina's Laws

In Argentina the interest of the petroleum industry has been centered largely in the efforts to obtain a revision of the mining code, with special provision for oil development. Legislation to this end has been proposed but it is understood that no definite results have been obtained. During the latter part of the year several of the leading oil companies which had been carrying on development activities in Argentina, of which the Anglo-Persian was the chief, were reported to have temporarily withdrawn from this field or at least to have sharply curtailed their operations. Reports indicate that some 70,000,000 pesos of private capital are estimated to have been invested in exploration work and test drilling in Argentina up to date, with commercial production said to have been obtained by only two companies. The lack of oil legislation is said to have been keenly felt, and it is possible that once this difficulty is settled, development by private capital will increase. Active operation on the Government oil reserves continue, and some time ago an appropriation of 20,000,000 pesos was requested for the stated purpose of further developing these reserves, including the construction of two refineries. The program of the State Petroleum Administration is said to provide for the drilling of 75 additional wells at Comodoro Rivadavia during 1924.

Exploration and test drilling are reported to have been carried on in Bolivia, and the discovery and successful exploitation of oil fields in Peru and Argentina is said to have stimulated the search for oil in Chile. Some drilling has been carried on in 1923 in the latter country, by both Chilean and foreign interests, but without commercial results being obtained.

Reports of small discoveries of oil in Brazil have led to the formation of several companies for the purpose of investigating and testing the supposed deposits, with especial interest in oil indications in the State of Sao Paulo. The Federal Government has also continued its investigation of the oil shales in Alogoas.

Uruguay is one of the countries importing all of the petroleum products consumed, and, like other countries similarly situated, is endeavoring to find some means of supplying a part of the demand from domestic resources. A new bill before the Uruguayan Legislature provides for the granting of a government monopoly for the manufacture of alcohol, and authorizes the Government to require that a mixture of about 50 per cent alcohol and 50 per cent gasline be used by motor vehicles and gasoline engines. If this bill is passed, it should eventually result in a marked decline in gasoline imports.

### Mexico's Decline

Mexican production for 1923 is considerably below the figure for the preceding year, with a continued decline in the output of light oil. The southern fields in 1921 furnished 82 per cent of the total Mexican production, 75 per cent in 1922, and only about 43 per cent in 1923, this being based on preliminary figures for 1923. During the first nine months of 1923 the southern field produced 48,731,392 barrels, compared to 158,439,703 barrels in the corresponding period of 1921.

In Canada, Government efforts to promote the production of petroleum led to the passage, early in the year, of a bill providing for the payment of a bounty on crude petroleum or oil derived from shale, to be authorized by the Governor in Council under certain conditions. Development work was carried on in various parts of the Dominion and some new production was reported. Refining facilities are being increased at various points, including the construction of a refinery at Calgary and one in Montreal. The possibility of obtaining a commercial output of oil from the Athabasca tar sands, in the province of Alberta, and from oil shales in New Brunswick and other sections, has continued to receive considerable attention.

The pertoleum trade of Great Britain as well as that of France, is largely characterized by the efforts of these countries to reduce their dependence upon foreign sources of supply. This characteristic is also a feature of the petroleum policy of Italy, Belgium and other countries which have relatively little or no commercial production of crude oil. The marketing of petroleum products in these countries is marked by very strong competition between the various distributing companies, and the year just closed was no exception in this respect. The rate war which was in progress in Belgium at the beginning of 1923, was reported as temporarily settled about the end of March, when the price of gasoline rose from 60 centimes per liter (around 13½ cents per gallon) to 1.40 francs per liter. This retrieved the situation only temporarily, however, and during the latter part of the year reductions in prices were again reported. In general, the petroleum trade in European countries has been disturbed by exchange fluctuations and the prevailing unsettled economic conditions.

### Russian Production

Production of crude petroleum in Russia during the operating year ending September 30, 1923, was somewhat above the figure for the preceding year, the output in the Baku Fields showing an increase of 18.5 per cent according to a report of the "Aznefť" published in Economic Life, Moscow. A considerable improvement in the number of wells in operation, footage drilled, and general conditions in the oil fields is also reported from the same source.

The petroleum industry of Poland, according to preliminary figures, will show an increase in production for 1923, for the first time in several years. During the first nine months of 1923, Polish crude oil output was about 5 per cent above the corresponding figure for 1922. This increase, small as it is, indicates that the previous steady decline in output has been cheacked, temporarily, at least. Owing to the previous exhaustion of stocks, however, refinery output during the year declined, and as domestic consumption is increasing, exports of refined products have also shown a decrease. This decline should affect the markets in Germany, Czechoslovakia, Austria and Hungary, to which Polish exports chiefly go. In fact, there has recently been reported a demand for crude oil for refineries in Austria and neighboring countries due to restricted supplies from their usual sources, of which Poland is one.

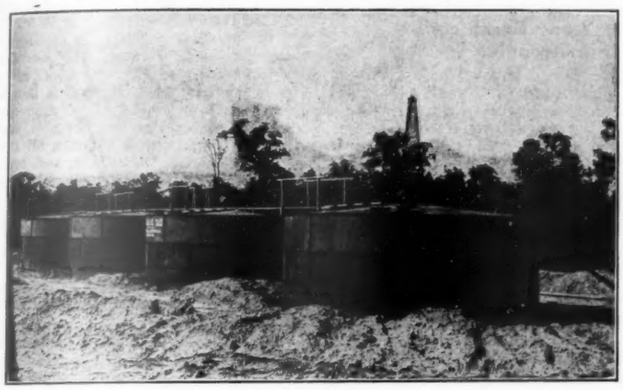
The nationalization of the subsoil, provided for in the new constitution signed on March 28, was one of the most important developments of the year in the petroleum industry of Rumania. Legislation to carry out the provisions of the constitution in this regard is understood to be under consideration and the results are being awaited with interest by the industry. The question of freedom of trade in petroleum products has also engaged the efforts of the various branches of the industry in that country, and the successful outcome of these efforts was reported during the latter part of December when a decree was made public which is said to provide for the desired freedom of trade. Rumanian production of crude oil showed a further increase of nearly 12 per cent over the 1922 output, based on figures for the first 10 months, and 31 per cent above the 1921 figure. It is said that this decree should result in a still further growth in production, as well as in a marked improvement in the petroleum export trade.

### Progress in Persia

Negotiations for a petroleum concession in the northern provinces of Persia proceeding during the year, and near the close of the year a contract was signed between the Persian Government and the Sinclair Oil Corp. for such a concession. This contract must be ratified by the Persian Parliament before becoming finally effective. As the concession was negotiated in compliance with a law passed by the Persian Parliament it seems unlikely that it will fail of ratification. By this concession the Sinclair Co. is given six months to begin surveys and three years to begin the production of oil with the stipulation that in eight years there must be expended $800,000 in native labor and material. There are numerous interesting questions relating to this concession, one of which will be

(Continued on Page 100)

# PERFECTION VAPOR PRESSURE TANKS
WOOD, AND BOLTED STEEL TANKS



*You will find PERFECTION batteries in every important oil field in the country. The picture on the left was taken at Burbank where there are many PERFECTION owners. There are Perfection representatives in every important locality.*

## A Standard of Comparison

A make or brand of tanks that does not embody those principles which has made the word "PERFECTION" a synonym for the best in oil field storage, will not get to first base with oil producers. For instinctively they ask themselves these questions when the purchase of lease storage is under consideration:

1. Will the tank eliminate evaporation?
2. Will it increase the gravity of the crude?
3. Will it pay a dividend in dollars and cents?
4. Is the fire hazard made negligible?
5. Is the tank properly constructed to stand strain?
6. Is the special apparatus for cheating evaporation fool-proof?
7. Will it pay for itself?

Those seven questions constitute the Perfection Standard of Comparison. And the wise producer will not be satisfied with the tank that is being compared.

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# California Field Operations

By L. P. Stockman

**More activity being displayed in fields producing low gravity oil as result strength fuel oil market and increased price for crude. Torrance extended half mile by completion making 492 bbls. 16.8 gravity oil. Long Beach completion of week ago increases flow while pressure holds up strongly.**

LOS ANGELES, Cal., Feb. 2.—The fuel oil market has been unusually strong during the past year and since the decline of Santa Fe Springs, the Standard Oil Co. has opened up many of its wells at Montebello and the Union is fast returning its producers in the Santa Maria Field to production. The Associated Shell and Standard have already opened up several hundred wells at Coalinga, Kern River and various other valley fields.

The Senatorial inquiry regarding the leasing of Teapot Dome in Wyoming and the Elk Hill Naval Reserves in California is receiving an unusual amount of consideration among operators, all of whom are more or less interested in the ultimate outcome. Should the action of the Senate result in the cancellation of the lease which the Pan-American Petroleum Co. has secured on the Elk Hills Naval Reserve it will have a distinct bearing on the future production of the State. The Pan-American has already surveyed a proposed route for a pipe line from Kern County to its Wilmington Refinery and it is doubtful whether the company will construct it if the lease on the Elk Hills Naval Reserve is cancelled.

E. L. Doheny stated some time ago that he expected to fully develop the Elk Hills property and would expend several million dollars in doing so during the coming year. The Pan-American transported several thousand barrels of fuel oil to Pearl Harbor some time ago and it has been taken for granted that this oil applied on the agreement between the company and the Navy Department. There have been no consignments leaving San Francisco or Los Angeles for this port for several months and it is unknown just how far the Pan-American has gone toward providing the tankage facilities required by its agreement with the Navy Department.

The company had agreed to keep in storage at Los Angeles harbor for the Navy approximately 2,000,000 bbls. of fuel oil but no deliveries have been made to date. The Union Oil Co. of California has a contract to supply the Navy Department on the Pacific Coast with fuel and refined oil and probably for this reason no demand has been made on the Pan-American for deliveries applying on its agreement.

### Torrance

Production at Torrance continues to remain stable, the output from new wells completed practically offsetting the decline in the older ones. Judging by present indications this condition will undoubtedly continue to prevail for several weeks at least. Probably the most important completion at Torrance for some time was the Consolidated Mutual Oil Co.'s No. 1 Oakley, just finished. This new well, located in the southeastern part of the district, extends the limits of the field in this direction approximately one-half mile. Number 1 Oakley, which was drilled to 3,801 feet and finished with a 6¼-inch oil string, landed at 3,792 feet, was a distinct surprise to operators in general. The most optimistic only expected a small well and would not have been surprised had there also been a good deal of water present in the output. It registered an initial production, however, of 492 bbls. a day of 16.8 gravity oil which showed a cut of 1 per cent sand. Since there was no water present, it is believed that the output will be comparatively clean after the well has flowed a few days and cleaned itself cut as the sand will undoubtedly be eliminated. Number 1 Oakley is flowing through a ⅞-inch bean under a pressure of 200 pounds, about the average for the field.

The completion gives the field a length of over 5½ miles and, since the completion depth was only slightly deeper than that of wells finished in the center of the field, there is a possibility that the district may extend for another half mile or so before being limited. The structure at Torrance is comparatively level and because of the fact that there is no great dip at either end the field will probably be defined unexpectedly by some outpost well suddenly running into edgewater at about the same depth from which a nearby producer is securing clean production. There is less than 100 feet difference between the highest and the lowest completion depth in the entire Torrance Field and some idea of the levelness of the oil zone can be gained by comparing this condition with that existing in most other fields. The absence of water in No. 1 Oakley would seem to indicate that the limits of the field in this direction had not yet been reached and, while this deduction is usually correct, it does not necessarily hold true in this instance. The gravity of the oil produced at Torrance seems to decrease as the edge of the field is approached and since the gravity of the oil from this new well is much lower than the output from wells nearer production, it is believed that the limits of the field are not far distant in this direction. The initial production of this new well, when compared with the output of wells a little more favorably located, would also tend to indicate that the limits of the fields are not far away. The oil from No. 1 Oakley, which is the farthest out on the structure at the present time, is quite low, testing only 16,8 degrees, while the production from the Standard Oil Co.'s No. 1 Dominguez, the Sentinel Oil Co.'s No. 1 Joughin and the Superior Oil Co.'s No. 4 Torrance, outpost producers on the east side of the field, varies in quality according to the distance from the center of the field.

The closest well to No. 1 Oakley, the Standard's No. 1 Dominguez, is producing 18.5 gravity oil, while the Sentinel's No. 1 Joughin, a little nearer the center of the field, is producing 19.3 gravity oil. The output of the Superior's No. 4 Torrance, still closer, tests about 20 degrees. Of course, it cannot be definitely stated that this difference in the gravity of the oil produced is an actual indication that the edge of the field is being approached, but the change is so marked that it deserves consideration. In addition to producing lower gravity oil, No. 1 Oakley is also credited with the smallest output. The production from the four wells mentioned decreases as the gravity of the oil drops and this condition, together with the difference in the output, is a fairly good indication that the field limits will soon be established.

While the Consolidated Mutual was finishing its No. 1 Oakley in the southeastern part of the field, the Union Oil Co. was making preparations to abandon its No. 1 Weston in the southwestern part. The latter was drilled to 5,731 feet and will be abandoned by the Union as a duster in a hard sandy formation. The Union is satisfied that its Weston lease is not productive and will probably quit claim it within a short time. The Shell Oil Co.'s No. 1 Keystone, another outpost well, is still held up with pipe trouble and no material progress was made during the past several days.

The Standard featured the week from a development standpoint by starting seven new wells, No. 5 Kirk, Nos. 3, 4 and 5 on its Interstate lease and Nos. 1, 2 and 3 on its Marble lease. The company's deep test, No. 1 Felker, is still dry at 5,280 feet and unless something materializes very shortly it will probably be abandoned as a dry hole. The Julius Petroleum Corp. brought in No. 2 Bell-Johnson during the early part of the week after drilling it to 3,796 feet and finishing it with a 6¼-inch oil string landed on bottom. It is credited with a production of 792 bbls. of clean 22.3 gravity oil a day and is flowing through a ⅞-inch bean under a pressure of 300 pounds. The company also completed No. 2 Cook with a 6¼-inch oil string landed on bottom, 3,810 feet, and, because of the fact that it only flowed intermittently, tubing will be run in and a production test made within a short time. Number 1 Spitzdozer completed several weeks ago, did not remain on production and it is to be washed out and put on the pump. If commercial production is not secured it is the intention of the company to deepen it.

The Petroleum Securities Co., a Doheny concern, experienced a very successful week and in addition to completing two new wells, erected rigs for seven more. The company's successful completions were Nos. 5 and 6 on its Marble lease, both drilled to 3,800 feet and finished with 6¼-inch oil strings landed on bottom. The former came in doing 501 bbls. of 23.1 gravity oil, which showed a cut of 2 per cent, while the latter registered an initial output of 360 bbls. of clean 25.9 gravity oil. Several weeks ago the Star Petroleum Co. suspended drilling on its No. 1 B. & R., a north line well at 3,708 feet, pending the outcome of the Biltmore Oil Co.'s No. 1, an offset. The latter secured an excellent core in its well and as a result discontinued drilling and set a string of 8¼-inch in preparation for production test. This hole is not as deep as the Star's No. 1 B. & R. and the showing cannot be accounted for unless the Star, in its haste, muddied off the oil sand, as sometimes happens when drilling with a rotary. The Hub Oil Co. successfully placed its No. 2 Cook-Brandon on production during the early part of the week after drilling it to 3,770 feet and finishing with a 6¼-inch liner. The initial production, however, was not large, 150 bbls. a day of 25.6 gravity oil being the well's maximum output.

The Petroleum Midway Co. (California Petroleum) took the weekly completion honors by finishing three new wells, two of them on its Wilson Community and one on its Stock Community lease.

Number 2 Wilson Community and No. 3 on the same lease, two of the company's latest completions, were brought in doing 210 bbls. and 385 bbls., respectively. The former was drilled to 3,709 feet, while the latter was finished at 3,727 feet. The oil from both is clean and tests 23.2 degrees. The company's No. 2 Stock Community was brought in flowing 675 bbls. a day of 26.1 gravity oil from 3,700 feet. The output, which is clean is flowing through a ½-inch bean under a pressure of 210 pounds.

### Long Beach

The Virginian Oil Co.'s No. 1, which came in barefooted a week ago and showed an output of 610 bbls. on its first production test, has since increased to a little better than 1,200 bbls. daily. As a rule, new wells show the largest production during the first few days and, although the production of the Virginian's new well increased, instead of decreasing, the remarkable part of its performance is the pressure which it has built up. This new producer, the first to secure oil across American Avenue, is flowing through a ¼-inch bean under a pressure of 540 pounds. The output and pressure are remarkable because of the location of the

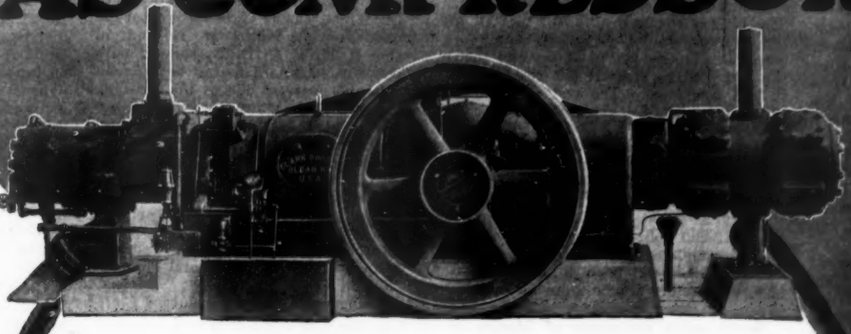
(Continued on Page 107)

### TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

| | |
|---|---|
| H. M. Flagler, January 20, New York, crude | 81,193 |
| Agwimex, January 21, Baltimore, crude | 94,937 |
| Nora, January 21, New Orleans, crude | 89,196 |
| E. T. Bedford, January 22, New York, crude | 111,170 |
| Agwismith, January 22, New York, crude | 101,903 |
| Japan Arrow, January 23, New York, crude | 91,863 |
| Shreveport, January 23, New York, crude | 68,257 |
| Cape Henlopen, January 24, New York, crude | 73,973 |
| Swiftwind, January 24, Fall River, crude | 76,619 |
| J. A. Moffett, Jr., January 24, New York, crude | 120,819 |
| Agwimars, January 24, New York, crude | 77,263 |
| Tuxpanoil, January 25, New York, crude | 81,441 |
| H. H. Rogers, January 25, New York, crude | 107,434 |
| Livingston Roe, January 26, New York, crude | 82,375 |
| Charles Pratt, January 27, New York, crude | 116,718 |
| Dillwyn, January 27, New York, crude | 77,810 |
| **Coastwise** | |
| Alden Anderson, January 21, Avon, crude | 73,109 |
| Frank H. Buck, January 22, Portland, fuel | 59,007 |
| La Placentia, January 23, Martinez, crude | 76,545 |
| W. S. Miller, January 24, Richmond, crude | 74,220 |
| Alden Anderson, January 26, Avon, crude | 71,731 |
| Deroche, January 27, Martinez, crude | 81,588 |
| La Placentia, January 27, Martinez, crude | 74,317 |
| Warwick, January 27, Portland, refined | 42,169 |
| Ardmore, January 27, Vancouver, crude | 71,905 |
| **Exports** | |
| Planorbis (Br.), January 25, Shanghai, refined | 50,431 |
| Kanwi (Jap.), January 25, Japan, fuel | 66,489 |
| **San Francisco** | |
| Westwego, January 18, London, refined | 59,170 |
| Col. E. L. Drake, January 22, Seattle, refined | 32,390 |
| R. J. Hanna, January 22, Portland, fuel | 72,881 |
| Los Alamos, January 22, Seattle, refined | 31,592 |
| El Segundo, January 23, Point Wells, refined | 27,597 |
| Charlie Watson, January 23, Point Wells, refined | 12,714 |
| Tejon, January 24, Portland, fuel | 57,401 |
| Capt. A. F. Lucas, January 25, Seattle, refined | 31,415 |
| Wm. F. Herrin, January 25, Seattle, fuel | 48,867 |
| F. H. Hillman, January 27, London, refined | 108,429 |
| Liebre, January 27, Everett, fuel | 62,178 |
| **From Port San Luis** | |
| Oleum, January 21, San Francisco, fuel | 38,666 |
| Hoven, January 26, Manila, fuel | 71,720 |
| Coalinga, January 28, Balboa, fuel | 73,820 |

# CLARK
## ~~DIRECT DRIVEN~~
## GAS COMPRESSORS



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This safety stop is in no way connected with the governor—in the absence of the operator the engine is always under a definite speed control.

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The most complete and efficient Gas Compressor ever offered to the trade—one that has won easily every competitive test.

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# North-Central Texas Field

By Dan F. Dugan

**Largest wildcat play in Wichita-Archer County area since boom days. Deep production promised near Cisco. Texas Pacific Coal & Oil Co.'s No. 1 Rogers, Stephens County, flows 510 initial. Sloan Oil Co.'s No. 2 Smart, Mitchell County, flowing 200 bbls. Hope for new pool near Moran.**

FORT WORTH, Tex., Feb. 4.—For the second week in succession in several months, production runs for the past week in the North Central Texas Field made an increase, 1,958 bbls. daily, with a total daily production reported at 110,425 bbls. as against 108,467 bbls. for the previous seven days. This increase came from two pools; the Iowa Park reported an increase of 2,440 bbls. daily and the Stephens County 470 bbls. daily. Partially offsetting this increase was a loss from the Burkburnett Pool of 595 and Electra 595 bbls., with a small increase of 240 bbls. from the wildcat pools.

A survey of present conditions in all sections of the North Central Texas Field shows a general resumption of activities in all branches of the industry with the outlook for a prosperous and busy period for many months. This condition is particularly in full blast in the semi-deep production territories of Wichita and Archer Counties where there is a wild scramble for desirable leases for immediate drilling development; and this rush is extending over into Baylor County to the west and north Young County to the south.

New locations, both in proven and semi-proven and wildcat territory are being made daily in the Wichita-Archer County area; drilling permits are now being issued at the rate of nearly a dozen a day and it looks as if every single quarter section not yet tested in the two counties will eventually be drilled if the terrific pace at present keeps up. As a matter of fact, the district is probably getting the largest wildcat play it has received since the boom days. Wichita Falls, the operating headquarters for the district, has the appearance of a city on a mild boom.

### Promising Test Near Cisco

In the deep lime producing fields, embracing Eastland, Stephens and the bordering edge of adjoining counties there is a noticeable revival of activities. Outstanding in interest was the performance of the Mayhew and others No. 1 Luse, which promises to bring the deeper production of the Ranger-Eastland district close to the town of Cisco. The test flowed into the derrick with 3,000 feet of oil standing in the hole, and not yet cleaned out. When agitated with the bailer, the flow was estimated around 100 bbls. at 3,480 feet. The prospect has caused great excitement at Cisco, which has been in the center of production without having an oil field of importance close to its borders. The test is cleaning out and will be drilled a little deeper in the lime and will be shot if its present production is not satisfactory.

Stephens County reported two fair producing completions, in fact, the largest in several weeks. The Texas Pacific Coal & Oil Co.'s No. 1 Rogers is credited with flowing 510 bbls. initial at 3,240 feet, and the Humble Oil & Refining Co.'s No. 6 Veale is showing 365 bbls. at 3,200 feet. These two wells were the only ones showing an attractive production completed in the south section of the field during the week.

Attracting some attention in Eastland County is the near completion of Turner & Clayton's No. 1 Harwood, a half mile southwest of the Lake Eastland Pool. The bit hit the pay at 3,310 feet in a lime formation. The well is spraying some oil. Casing has to be set and then the test will be cleaned out and drilled in and completed. The test now shows all indications of making a commercial producer.

It is reported from Colorado City, Mitchell County, the Sloan Oil Co.'s No. 2 Smart, Section 21, Block 28, Texas & Pacific Railway Co. survey, drilled into the pay at 2,996 feet; it is flowing by heads at 200 bbls. or more. The well is not yet completed, but present indications are it will settle down to around 100 bbls. or possibly a little more at completion.

Seven miles northwest of Moran in Shackelford County, Hendrick and others' No. 1 Hendrick, a wildcat test 2½ miles from production, at 661 feet, is flowing oil over the casing and has every indication of making a paying well at that depth. It also may be the discovery well of a new pool, as there are several dry holes between it and the nearest production in the Dennis Pool.

### Archer County Activity

An increase in every branch of field activities is reported from Archer County. New tests were started in all sections, resulting in the completion of numerous big wells with almost daily regularity, and adding thousands of acres to the producing areas.

There was completed during the week a total of 12 tests, of which three were disappointments. All the dry holes were No.1 tests in wildcat territory or at least outside of any proven area. Among the producers completed were several wells showing for better than an average production. The Texas Co.'s No. 1 Parrish is swabbing 400 bbls. at 1,590 feet. Dale and others' Nos. 2 and 4 Wilson are showing 500 bbls. each around 1,600 feet. The same company's No. 2-B Wilson is a 385-bbl. completion, and the Panhandle Oil & Refining Co.'s No. 1 Parrish is showing initial 220 bbls. at 1,595 feet. Tests that have reached the pay and not yet completed but are showing sufficient initial production to attract more than passing attention are the R. M. F. Oil Co.'s No. 1-B Wilson, which swabbed 900 bbls. and is being tested on the beam at 1,590 feet. The Maer and others No. 1-B Wilson swabbed 350 bbls. in 24 hours at 1,385 feet.

Wildcat tests that caused flurries during the week, without yet adding anything to the county's production are the Burns-Maxson No. 1 Wilson, 2 miles southeast of the Sunshine district. It had a show of oil at 1,603 feet, but bailing results were disappointing and the well is being deepened. Three miles southwest of the Gose district, the Texhoma Oil & Refining Co.'s No. 2 Lyle, after showing some hopeful signs, tested salt water at 1,700 feet. Near the Baylor County line, The Texas Co.'s No. 1 Dormier is reported preparing to test a sand at 1,317 feet, but to date it shows no indications of making a commercial producer. The White Oil Corp.'s No. 1 Wilson bailed salt water and a little oil at 1,545 feet.

After coring a few inches into a sand that showed considerable oil at a depth of 1,638 feet, casing is being set by the Simms Oil Co.'s No. 1 M. Dowlen, in Section 2, H. T. C. R. R. survey, with the view of testing. This test has created considerable interest due to the location. In the event of making a well the producing area will be extended in the northeast direction over 1½ miles.

Dee Brothers' No. 1 Mangold has finished bailing a sand encountered at 1,820 feet, which for a time promised the making of a small producer, but after the hole was bailed dry failed to show up. Casing has been pulled and the test will be abandoned as dry at a total depth of 1,825 feet.

### Shappel District Producers

The Shappel district in the neighborhood of Murphy's corner continues the center of attraction in Wichita County. Three more producers, the fifth, sixth and seventh, have seemingly been added to the pool, being the Texhoma Oil & Refining Co.'s No. 2 Hamilton and Shappell's No. 2 Jackson, southwest and south respectively, of the discovery well, and to the east the Panhandle Oil & Refining Co.'s No. 1 Jackson, which showed 1,100 feet of fluid in the hole at 1,815 feet. The Texhoma Oil & Refining Co.'s No. 2 Hamilton is rigging to pump a sand showing oil at 1,810 feet and the Shappell and others No. 2 Jackson swabbed 210 bbls. in 20 hours at 1,805 feet.

In Block 17 of the Denton County school lands, the Knight & Hines No. 1 Dutton tested salt water in a sand at 1,835 feet. This well is 2 miles northeast of the Shappell Pool.

Near Holliday, the John O'Donohoe No. 1 McCall and Sanderson and the Parker No. 1 are due to reach the sand before another week passes. Their completion will prove up that territory lying between the Shappell Pool and the town of Holliday.

Practically the entire section between the Shappell district and Lake Wichita is being located and it is evident it will be thoroughly drilled out. More drilling is now in progress within 10 miles of the courthouse at Wichita Falls than ever in the county's history.

Casing is being set on the "Pegleg" sand picked up at 125 feet in Allen and others' No. 1 Roller, south of Iowa Park, in the shallow district. The sand was penetrated a few inches and several feet of oil rose in the hole.

### Completion in Clara

One completion was reported from the Clara district, Perkins and others' No. 4 Saunders, which showed 15 bbls. at 1,850 feet.

Tests are drilling in the Hirschi district, one by the Pigg Oil Co., two by the Gulf Production Co., two by Murchison and others due to start shortly. Three miles northwest of the Hirschi Pool M. O. Danciger is planning a deep test in No. 1 Marshall.

The South Vernon Oil Co.'s No. 1 Stephens, 8 miles south of Vernon, Wilbarger County, is making 150 bbls. a day on the pump. The well had an initial production after cleaning out of 200 bbls. Offset leases have been selling as high as $100 to $150 per acre, most of them carrying drilling contracts.

Late field reports from San Angelo credit the Big Lake Oil Co.'s No. 3 University, Reagan County, with showing estimated 100 bbls. daily after a shot of 20 quarts at 3,043 feet.

Drilling of the Big Lake Co.'s No. 2 University had progressed to 3,037 feet. It has filled the hole with oil several times since drilling in January 19 at 3,027 feet. It is said that contracts for drilling several more tests in the immediate vicinity of the discovery well have been let with the first test to start next week.

### Burkburnett-Hirschi

Completions reported in the Burkburnett and Hirschi Pools are the Perkins and others' No. 4 Saunders, 15 bbls. at 1,860 feet.

Drilling — Gulf Production Co.'s No. 16 Dale, drilling in a sand formation after setting 6⅝-inch casing at 1,800 feet, total depth 1,835 feet; No. 2 Saunders, drilling at 1,015 feet; Kemp & Ferris' No. 6 Eads, rigging to pump and test a sand at 995 feet; Lewis and King's No. 2 George, shut down for a cable tool rig at 2,575 feet; McDabb Oil Co.'s No. 2-A Saunders, shut down for orders on top of an oil sand at 1,890 feet. Magnolia Petroleum Co.'s No. 2 Holtzen, drilling at 1,120 feet; No. 20 Hortain, fishing for lugs at 895 feet; John O'Neil's No. 5 Saunders, shut down for orders on top of an oil sand at 1,825 feet; Perkins and others' No. 5 Saunders, drilling at 600 feet; Robinson Oil Co.'s No. 7 Reiler, drilling at 340 feet; Texhoma Oil & Refining Co.'s No. 1-B Powell, drilling in rock at 705 feet.

### Wichita County

Completions—United Production Co.'s No. 2 Jennings, dry at 2,055 feet; Fisher and others' No. 3-B Fisher, dry at 1,929 feet; Hartford Trust Co.'s No. 12 Burnett, dry at 1,850 feet; Jefferson Oil Co.'s No. 4 Jeff Waggoner, dry at 1,650 feet.

Drilling — The Texas Co.'s No. 286 Waggoner, running 8¼-inch casing on top of an oil sand at 1,952 feet; Baldwin and others' No. 1 Herron, drilling at 200 feet; Gulf Production Co.'s No. 1-J Waggoner, drilling in blue shale at 1,470 feet; Kruger and others' No. 8 Waggoner, drilling at 1,250 feet; Magnolia Petroleum Co.'s No. 7 Douglas, drilling in brown shale at 1,300 feet; No. 8 Allen, drilling at 1,165 feet; Mansfield and others' No. 3 Mrs. Jennings, at 250 feet; Memphis Petroleum Co.'s No. 3 Honaker, pulling outside pipe, has a sand at 1,050 feet showing some oil. Moran and others' No. 1 Honaker, drilling at 600 feet; Rowe Drilling Co.'s No. 2 Waggoner, at 1,600 feet; Bowen and others' No. 1 Fassett, at 400 feet; Culberson and others' No. 21 Jeff Waggoner, at 2,185 feet; Fouch and others' No. 1 Mrs. Jennings, at 875 feet; Gulf Production Co.'s No. 1 Miller, at 1,695 feet; No. 3-C Jeff Waggoner, drilling in red mud at 370 feet; Hartford Trust Co.'s No. 6-A Burnett, drilling at 1,345 feet; McClure and others' No. 4 Henson, drilling in brown shale at 1,325 feet; Magnolia Petroleum Co.'s No. 30-A Waggoner, drilling in rock at 1,235 feet; No. 31-A Waggoner, has 1,000 feet of oil in the hole, will set 6⅝-inch casing before testing at 1,650 feet; No. 2 Pere Waggoner, drilling at 1,315 feet; No. 78-B Burnett, drilling in shale at 1,425 feet; No. 67-B Burnett, drilling in rock without any showing at 2,120 feet; Perkins and others' No. 2 Burnett, drilling at 675 feet; Sonner Oil Association No. 7 Roberts, drilling with a rig at 1,000 feet; Sproles and others' No. 1 Fisher, drilling in soft rock at 1,280 feet; Stacy and others' No. 1 Burnett, drilling in blue shale at 1,585 feet; Wiley and others' No. 1 Jeff Waggoner, has 300 feet of oil in the hole and will pump and test a sand at 1,245 feet; Texhoma Oil & Refining Co.'s No. 15-E Waggoner, sand showing oil and setting 6⅝-inch casing at 1,880 feet; No. 13-F Waggoner, drilling at 1,770 feet; No. 4-A Burnett, coring and testing a sand at 1,825 feet; American Refining Co.'s No. 1 K. & K., drilling in shale at 1,325 feet; Carter and others' No. 4 K. & K., ratholing at 1,780 feet; Staley and others' No. 1 K. & K., ratholing at 1,772 feet;

(Continued on Page 88)

# The Tank Car Situation

**Another big demand for new Tank Cars is just developing. Indications point toward a much larger number of cars than purchased in 1923 and greater urgency for rush deliveries, due to the greatly increased volume of gasoline to be transported.**

**Those who failed to place orders early last year later paid higher prices and accepted slower deliveries; those who defer action this year are inviting a worse penalty, for the following reasons:**

1. Last year at this time car orders were booked and materials ordered for six months ahead; whereas this year's buying is just starting and, unless quickly concluded, deliveries will be delayed by slow shipments of steel and other components, due to large orders placed in advance for other types of railway cars. The billion dollars to be spent in 1924 by the railroads is sure to make steel deliveries slow and tank car costs higher.

2. Limited availability of men properly skilled in tank car construction and higher wage rates that necessarily follow a peak demand.

3. The carbuilders' maximum capacity per day is so many cars and no more; hence, with orders being booked at a greater rate than capacity, orders must take their turn. While we still offer reasonably prompt delivery, this situation cannot be as favorable a few weeks later—even another week may materially affect it.

## Do It NOW

## American Car and Foundry Company

165 Broadway, New York — Railway Exchange Building, Chicago — 915 Olive Street, St. Louis

# "Car Foundry" Tank Cars

# North Louisiana-Arkansas

By M. L. Vaughn

**Crosby Trustee completed No. 3 Harrell, Union County, flows 250 bbls.; Gulf Refining No. 1 Jameson and Lion Co.'s No. 4 Graves pump 225 bbls each. The Texas Co.'s No. 2 Cook pumps 250. Gulf Refining Co. No. 2 Harrison Ouachita, flows 315 bbls. No. 2 Stringfellow 135 bbls. Standard's No. 4 Solmson 110.**

SHREVEPORT, La., Feb. 4.—Production figures for the past week continue to show a slight increase, runs from the Arkansas Field remaining practically the same as last week while the Louisiana fields are responsible for an increase of 1,270 barrels a day. A prevailing spirit of optimism is reflected in increased development throughout both Arkansas and North Louisiana fields and half a dozen widely separated territories are in the limelight as possible new pools.

Daily average production for the past week amounted to 166,120 barrels, compared with 164,930 barrels for the previous week, an increase of 1,190 barrels a day. Arkansas production averaged 112,245 barrels a day while the total from the North Louisiana Field averaged 53,875 barrels daily. Production from each district is as follows:

| | |
|---|---|
| **North Louisiana** | |
| Caddo light | 8,665 |
| Caddo heavy | 2,390 |
| De Soto and Red River | 5,430 |
| Elm Grove | 1,060 |
| Haynesville | 22,010 |
| Homer | 8,710 |
| Bellevue | 5,610 |
| Total | 53,875 |
| **South Arkansas** | |
| El Dorado | 15,310 |
| Smackover light | 22,420 |
| Smackover heavy | 71,620 |
| Total | 112,245 |
| Total both fields | 166,120 |
| Total last week | 164,930 |
| Increase | 1,190 |

The Arkansas conservation department issued permits for 15 new wells during the past week and states that at least 10 wells have been started without having obtained permits from the department. It has been determined to enforce the permit law of the State and prosecution will be pressed against all who start drilling without first having obtained a permit from the conservation department.

### Camden Wildcats

Camden has become the center of the latest oil boom and hotels are filled to capacity with traders in leases, operators and scouts. Extensions of the Louann territory has brought production to within a few miles of Camden and the town is now the center of a dozen or more promising wildcat tests. The Houston Oil Co. has approximately 200 men at work on the construction of its $750,000 refinery and storage facilities are being provided by the St. Louis Southwestern Railroad at Herbert, 1 mile south of the city limits.

Bond has been filed by the Monie-Dunbar Construction Co. of St. Louis, in acceptance of the gas franchise granted by the city of Camden under which they guarantee to furnish gas to Camden consumers within 90 days from January 13. Contract for the gas supply has been made with the Houston Oil Co. which will build a line and deliver the gas to the franchise holders at Herbert. Mains from Herbert to Camden are nearly completed and work will be started at once on the lines to the gas fields.

The Gilliland Oil Co. has entered the Louann territory, purchased a lease in producing territory and will start drilling four wells at once.

Interest continues in the Cotton Valley district in Webster Parish, greatly augmented by the fact that the Texas Pipe Line Co. has agreed to tap its main line running from Smackover to the Ardis tank farm just south of Shreveport, and run a 4-inch line to the Merritt well. The Louisiana Oil Refining Corp., owner of the well, will furnish the pumping equipment and has completed earthen storage of 10,000-barrel capacity. The well was opened Thursday for a 24-hour run and flowed at the rate of 150 barrels a day with no salt water or b. s. During this period, the gas pressure dropped from 900 pounds to 50 pounds. The Triangle Drilling Co. has started the first off-set to the Merritt well, on the Merritt lease in Section 14-21-10, and another interesting test has been started by the White Oil Corp. in Section 31-22-9, 3 miles northeast of the discovery well. Eight wells are now drilling in the Cotton Valley district.

The rate war which started in El Dorado, Ark., in October, between the Citizen's Light & Power Co. of El Dorado, and the Arkansas Light & Power Co. of Pine Bluff, has ended in a merger of the two companies and the home company has gone out of business. The Arkansas Light & Power Co. has purchased the distributing system of the local company and will hereafter control all light and power facilities in El Dorado and the surrounding oil fields.

Escaping gas in the Lion Oil Refining Co.'s plant at El Dorado resulted in the death of one man and eight others were seriously affected or injured. Some overcome by the gas, fell into scalding water and were badly burned. H. M. McJimsey sacrificed his life when he headed a rescuing party to save the lives of the first two men noticeably affected by the escaping gas. He succeeded in rescuing the two men but was overcome by the fumes and died in the hospital an hour later. Those who are still in the hospital under treatment are Robert H. Siders, J. L. Lebtue, J. B. Woolsey, R. L. Mills and Casey Jones.

A. E. Humphreys of Denver, Colo., accompanied by Julius Fohs, geologist of New York, has just concluded a visit to the Monroe gas field in northeastern Louisiana, where the Humphreys Carbon Co. has recently completed one of the largest carbon plants in the United States.

The Louisiana Oil Refining Corp. has completed its lubricating plant at Bossier City and is turning out a lubricating oil made from Bellevue crude. The oil stands the "zero test" and is also said to retain its homogenous characteristics at higher temperatures. Doctor Lederer, vice president of the Louisiana Oil Refining Corp., has charge of the new plant.

The Caddo Central Oil & Refining Co. has opened a new filling station at the corner of Marshall and Cotton Streets. This company is a local organization and has been in operation in Shreveport for eight years. It owns and operates two larger refineries at Cedar Grove, operates 800 railroad tank cars and has a tank wagon system which supplies the country within a radius of 40 miles surrounding Shreveport.

### Union County, Arkansas

Twelve completions during the past week added 1,562 bbls. to the daily production of the field, one 25,000,000-foot gas well and a small gasser with a spray of oil which will probably develop into an oil well.

The Corby Syndicate's first test on the Childs lease in Section 8-16-16, came in flowing through 2½-inch tubing at the rate of 40 barrels a day at 2,263 feet. The well is making considerable salt water.

Crosby Trustee completed No. 3 Harrell in Section 17-16-15, flowing through 2-inch tubing, 250 bbls. a day at 2,050 feet.

The Gulf Refining Co.'s No. 1 Jameson, in Section 21-16-15, made a 225-bbl. pumper in 32 feet of broken sand at 2,047 feet.

The Higgins Oil & Fuel Co. completed No. 4 Jameson in Section 21-16-11, flowing by heads at the rate of 120 bbls. a day in 18 feet of broken sand at 2,045 feet.

The Lion Oil & Refining Co.'s No. 4 Graves, in Section 3-16-15, made a 225-bbl. pumper in 40 feet of broken sand at 1,985 feet.

Noe and others completed No. 2 Wells in Section 15-16-15, swabbing 100 bbls. at 2,036 feet in 24 feet of broken sand.

The Quaker City Petroleum Co. completed No. 1 Sloan in Section 14-17-15, making 3,000,000 feet of gas with a spray of oil at 2,190 feet.

Ray and others completed No. 1 Tatum in Section 7-16-15, making 25,000,000 feet of dry gas in 17 feet of broken sand at 2,275 feet.

The Smackover Petroleum Co.'s No. 2 Murphy, in Section 14-16-15, made a 125-bbl. pumper at 1,986 feet.

The Standard Oil Co. put two wells on the beam during the week, No. 10 Alphin in Section 11-16-15, pumping 120 bbls. at 1,990 feet, and No. 2 Linglebach in Section 22-16-15, pumping 97 bbls. at 2,029 feet.

The Texas Co.'s No. 2 Cook, in Section 21-16-15, made a 250-bbl. pumper at 2,063 feet in 15 feet of sand.

### Drilling Operations

Increased activity is noted throughout the entire Arkansas field and Union County is getting its full share of new work.

Among the new wells started during the past week, J. M. Clark is rigging up to drill No. 1 Cook in Section 17-16-15; Crusby Trustee, building derrick for No. 1 Bruns in Section 17-16-15; Humphreys Petroleum Co., rigging up No. 2 R. J. Hicks, Section 20-16-15, and Hurst and others moving in rig for No. 1 Dumas in Section 9-17-16.

Keen & Woolf have made a location for No. 1 Hinshaw and are rigging up to drill No. 2 in Section 17-16-15; Lion Oil & Refining Co. is rigging up No. 1 J. T. Murphy in Section 8-16-15; Magnolia Petroleum Co. set 10-inch casing at 375 feet in No. 2 Neely, Section 1-16-17, and McFarland & Finck are down 450 feet in No. 3 Lyell, Section 3-16-15.

Ramage and others are rigging up to drill No. 2 G. F. Murphy in Section 21-16-15; Smitherman & McDonald have derrick up for Saxon A-4 in Section 32-15-16; Standard Oil Co., rigging up to drill No. 1 Alphin in Section 11-16-15; Sun Oil Co. set 10-inch casing at 175 feet in No. 7 Hays, Section 3-16-15, and Tarver and others made a location for No. 1 White in Section 36-19-12.

The Arkansas Natural Gas Co. is drilling at 2,010 feet in No. 3 Ferguson, Section 6-16-15; Delukis and others are drilling in rock at 855 feet in No. 3 Harrell, Section 17-16-15, and Detroit-Summerfield set 6-inch casing at 2,142 feet in No. 9 Moody, Section 17-17-14.

Anthony Doll, who took over Olvey and others' Murphy lease in Section 8-16-13, is drilling at 1,910 feet in No. 1 Murphy; Federal Petroleum Co., drilling at 1,885 feet in No. 4 W. H. Murphy, Section 22-16-15, and Garrett and others are drilling in sand rock at 2,536 feet in No. 1 Robinson, Section 33-18-14.

George & Jones are arranging to bail liner and plug back to shut off the salt water in No. 3 Young, Section 18-18-15, at 2,095 feet; Gulf Refining Co., drilling in shale at 1,925 feet in No. 2 Jameson, Section 21-16-15, set 4½-inch casing at 2,235 feet in No. 5 James, Section 6-16-15, set 6-inch casing at 1,975 feet in No. 1 LeCroy, Section 16-16-15, arranging to test 70 feet of broken sand at 2,000 feet in No. 4 G. E. Murphy, Section 8-16-15, drilling at 1,200 feet in No. 1 T. D. Murphy, Section 7-16-15, and drilling in gumbo at 2,182 feet in No. 13 Werner, Section 32-15-16.

Hodges and others have 900 feet of oil standing in the hole at 2,104 feet in No. 2 Murphy, Section 7-16-15; Houston Oil Co. plugged back six feet to shut off the salt water at 2,067 feet in No. 1 Ballard, Section 21-16-15; Humble Oil & Refining Co., arranging to mill out the junk in Giller A-3, Section 15-16-15, and test 32 feet of broken sand at 2,016 feet; has 1,000 feet of oil standing in the hole in No. 5 E. G. Murphy, Section 14-16-15, and building standard rig to pump.

The Humphreys Petroleum Co. has 1,800 feet of oil standing in the hole at 2,086 feet in No. 1 L. Hicks, Section 20-16-15, and is arranging to set 2-inch tubing in 32 feet of broken sand. The Lion Oil & Refining Co. set 6⅝-inch casing at 1,945 feet in No. 4 Lawton, Section 10-16-15; has 1,200 feet of oil standing in the hole in 30 feet of broken sand at 2,092 feet in No. 2 G. E. Murphy, Section 8-16-15, and drilling at 1,300 feet in No. 2 G. F. Murphy, Section 18-16-15.

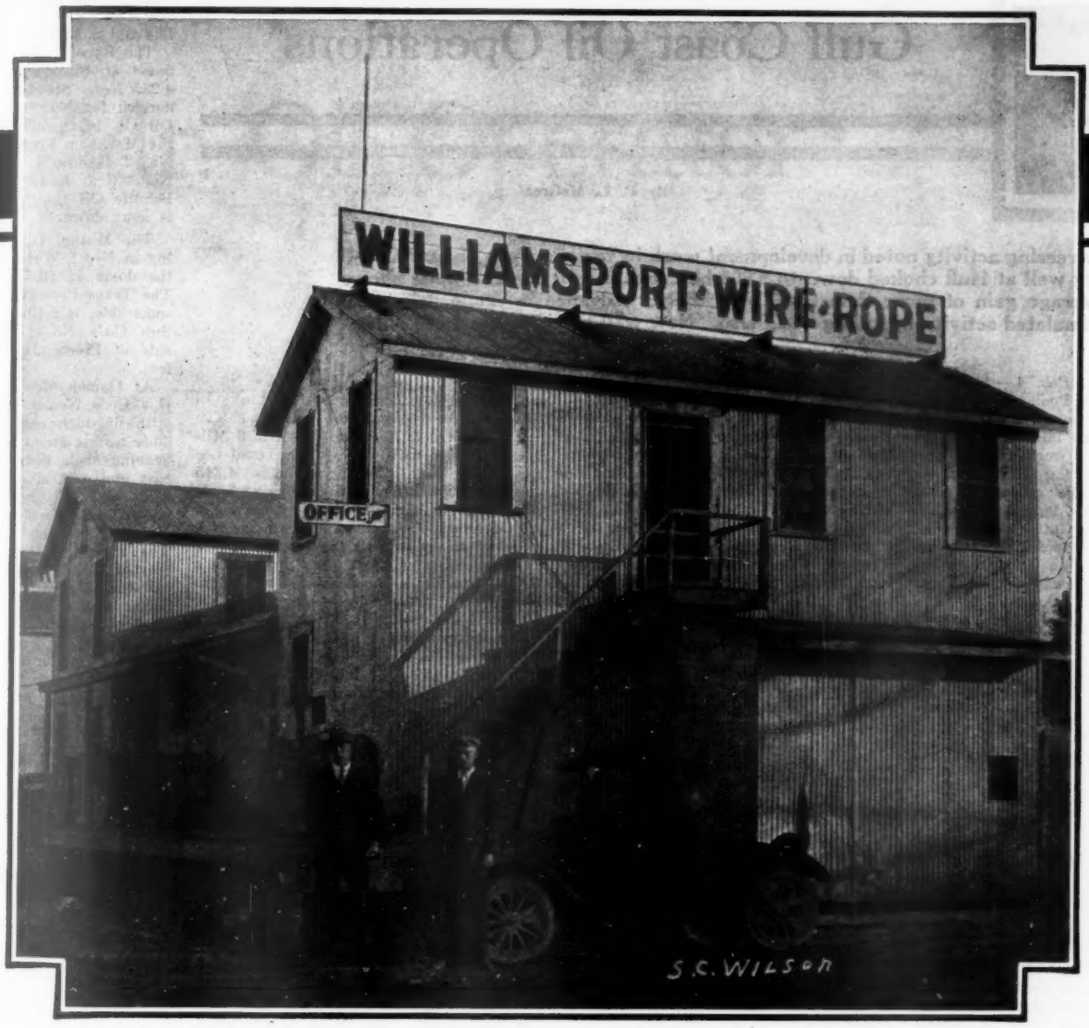
The Magnolia Petroleum Co. is drilling at 1,100 feet in No. 1 Fagg, Section 8-16-16, and set 10-inch casing at 375 feet in No. 2 Meely, Section 1-16-17; McPherson Oil Co. has 800 feet of oil standing in the hole at 2,080 feet in No. 1 Murphy, Section 17-16-15, and building standard rig to pump, and Natural Gas & Petroleum Co. set 6-inch casing at 2,275 feet in No. 2 G. E. Murphy, Section 8-16-15.

Page and others are building standard rig to pump No. 1 Holmes in Section 29-16-15; Pherris and others, reaming to set 6-inch casing at 1,950 feet in No. 1 Goodwin, Section 28-16-15; Phillips Petroleum Co., drilling at 810 feet in No. 4 Giller, Section 11-16-15, and Pure Oil Co. set 6-inch casing at 1,985 feet in No. 4 and rigging up to drill No. 5 in Section 15-16-15.

Ray and others are setting liner at 2,120 feet in No. 1 Long, Section 29-16-14; Smackover Petroleum Co. has 1,580 feet of oil in the hole in No. 1 Murphy, Section 14-16-15, and building standard rig to pump at 1,995 feet; Standard Oil Co., drilling at 1,390 feet in No. 4 Lingelbach, Section 22-16-15, and drilling out plug in 4⅜-inch casing at 2,240 feet in No. 3 McClannahan, Section 6-16-15.

Starke and others are washing to the bottom of the hole in No. 1 Little, Section 21-19-12, down 2,208 feet; Thurman and others set 6-inch casing at 1,5[illegible] feet in No. 1 Smith, Section 17-16-15; Tidal-Osage Oil Co. set 6⅝-inch casing at 1,954 feet in No. 3 Vestal, Section [illegible] 17-16-15, and Wortham & Orr are down

(Continued on Page 106)

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You will find C. B. Hinton, our Smackover manager (left), and W. M. Slater, bookkeeper, right on the job.

A standing invitation is extended to all to drop in at our Smackover warehouse any time and listen to grand opera selections and bedtime stories.

During the intermissions our men can tell you which style and grade of WILLIAMSPORT Line will give you extraordinary service on your particular kind of job.

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**WE GIVE SERVICE IN EVERY IMPORTANT FIELD**

# WILLIAMSPORT

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# Gulf Coast Oil Operations

By P. L. McGreal

**Increasing activity noted in development work in various areas of Gulf Coast. Big well at Hull choked down to 5,000 bbls., but production for week shows average gain of more than 6,000 bbls. daily. Advance in crude prices has stimulated activity in Luling Field also. New well there makes 1,000 bbls.**

HOUSTON, Tex., Feb. 4.—A 10,000-bbl. well in the Hull Pool, which late in the week had been choked down to 5,000 bbls. per day and an increasing number of rigs being put to work are the outstanding features in the Gulf Coast region this week. The estimated gross production shows an increase of 6,205 bbls., including the Gulf Coast region, the Laredo, Somerset and Milam County districts.

The estimate for each district is as follows:

| District— | Bbls. |
|---|---|
| Batson | 1,095 |
| Blue Ridge | 690 |
| Barber Hill | 260 |
| Dayton | 95 |
| Damon Mound | 1,650 |
| Edgerly | 380 |
| Goose Creek | 13,550 |
| Humble | 5,300 |
| Hull | 22,700 |
| Jennings | 610 |
| Markham | 100 |
| Orange | 12,200 |
| Pierce Junction | 690 |
| Spindletop | 840 |
| Saratoga | 1,635 |
| Sour Lake | 4,770 |
| Somerset and Piedras Pintas | 2,535 |
| Vinton | 5,470 |
| Welsh and Anse La Bute | 95 |
| West Columbia | 13,900 |
| *Miscellaneous | 3,585 |
| Total | 92,150 |

*Includes Laredo districts, 2,400 bbls.; Big Hill, 25 bbls.; High Island, 35 bbls.; Nacogdoches, 110 bbls.; Stratton Ridge, 50 bbls.; Big Creek, 15 bbls.; Hockley, 10 bbls.

The estimate for the Gulf Coast alone is 86,030 bbls. against 78,820 bbls. last week, the well at Hull being responsible for the increase. The Luling Field is estimated at 12,250 bbls., three completions there and higher price adding to the output, shut in wells having been opened. The Callihan district is estimated at 2,100 bbls. potential.

### Completions During the Week

In addition to the 10,000-bbl. well in the Hull Pool, the Mecom Oil Co.'s No. 3 Mecom on the northwest side of the dome there, is flowing and pumping 200 bbls. after being worked over. The Humble Oil & Refining Co.'s No. 2 Taylor bailed salt water at 3,185 feet and the Monarch Oil & Refining Co.'s No. 2 Miller got the same at 4,255 feet. The Houston Production Co.'s No. 7 Taylor is pumping 30 bbls. at 3,070 feet and the Yount-Lee Oil Co.'s No. 8 Merchant is bailing at 3,010 feet. These are all on the northwest side. The Republic Production Co.'s No. 43 Dolbear is making 250 bbls. of fluid, 50 per cent oil. It came in last week flowing 1,500 bbls. of fluid, 50 per cent oil at 3,150 feet. On the southeast side of the hill the Gulf Production Co.'s No. 4 Thomas fee is pumping 275 bbls. at 2,800 feet, after being worked over. On the south side, the Sun Oil Co.'s No. 9 Carr bailed salt water at 3,605 feet after being drilled deeper. It will be plugged back to 2,100 feet for a test.

In the Orange Pool, the Brownie Babbittee Oil Co.'s No. 4 McLain will make a pumper at 4,065 feet and its No. 6 McLain is making 100 bbls. of fluid, 10 per cent oil at 3,350 feet. Both are workovers. The Humble Oil & Refining Co.'s No. 18-B Chesson, another work over is flowing 1,000 bbls. of fluid, only 10 per cent of which is oil at 4,255 feet. The Edgerly Petroleum Co.'s No. 3 Carbello is bailing at 3,170 feet. The Orange Petroleum Co.'s No. 4 Chesson got salt water at 4,000 feet. Both are workovers. The Gulf Production Co.'s No. 1 Winifree is testing with 40 feet of strainer set at 3,600 feet. It is a hole that was deepened. The Rycade Oil Co. is preparing to test No. 3-A State land at 4,800 feet on the banks of Cow Bayou.

In the Goose Creek Pool, the Gulf Production Co.'s No. 9 Paddock is bailing at 2,500 feet an dthe Humble Oil & Refining Co.'s No. 10 Tabb is doing the same at 4,540 feet. The Duetser Oil Co.'s No. 1 Hoos in the Batson Pool is going on the beam at 1,325 feet. Paggi Bros. Oil Co.'s No. 3 Lewis in the Saratoga Pool, is dry at 1,565 feet. The Texas Co.'s No. 233 Fee in the Sour Lake Pool is bailing at 2,000 feet and T. G. Barclay's No. 4 Rogers in the old shallow sand section there is making 15 bbls. at 422 feet. The Gulf Production Co. is setting strainer in No. 6 Wheat at Big Creek in Fort Bend County at 2,200 feet to make a test. H. R. Cullen is bailing No. 3 Ward at Damon Mound with 2½-inch strainer set. The Sinclair Oil & Gas Co.'s No. 20 Jackson there pumped 50 bbls. per day for a time and then quit.

In the Vinton (La.) Pool, the Gulf Refining Co.'s No. 23 Vincent is pumping 175 bbls. at 2,100 feet. The Vinton Petroleum Co.'s No. 11 Harmony is pumping 20 bbls. at 1,800 feet.

Outside of the pools, the Humble Oil & Refining Co.'s No. 1 Kissman is a 5,000,000-foot gasser at 2,200 feet, after being drilled to 4,600 feet. It is near Kingsville, Kleberg County. The Texas Exploration Co.'s No. 15 Warren Ranch on the north side of the Hockley Dome got nothing at 2,065 feet. Screen has been pulled and the hole will be drilled deeper. The Gulf Production Co.'s No. 2 on the Boling Dome in the southeastern part of Wharton County blew out around 700 feet, the gas overcoming some men of the crew, who quickly recovered. It showed dome formations at about the same depth at No. 1. A location has been made for No. 3, 2,000 feet west from No. 1. The Texas, Sun, Vacuum and other companies are leasing. The Vacuum Oil Co.'s test, north of Lake Charles, La., is reported in a sand showing some oil and gas around 2,500 feet.

### Drilling in the Pools

On the east side of the Hull Pool, the Republic Production Co.'s No. 50 Dolbear is working over. No. 77 is drilling at 2,980 feet with a derrick up for No. 78. On the northeast side, the Humble Oil & Refining Co.'s No. 9 Hankmer is deepening. No. 11 Scarborough on the north side of below 3,200 feet. On the southeast side, the Gulf Production Co.'s No. 9 Phoenix is working over and No. 36 is drilling below 2,200 feet with No. 37 around 650 feet. No. 1 Thomas is rigging to deepen. On the southwest side, The Texas Co. and Vacuum joint No. 2 Hannah is a location.

On the west side, the Gulf Co.'s No. 12 Hannah fee is below 3,276 feet. On the northwest side, the Humble Oil & Refining Co.'s No. 1 Sterling is below 3,765 feet with No. 2 Merchant rigging. The Empire Gas and Fuel Co.'s No. 3 Lynd is below 380 feet. The Link Oil Co. is side tracking No. 3 Pevito. The Monarch Oil & Refining Co.'s No. 3 Miller is below 4,610 feet. The Yount-Lee Oil Co.'s No. 4 Taylor is below 4,345 feet and No. 5 Taylor is drilling at 2,990 feet. The Higgins Oil & Fuel Co.'s No. 7 Merchant is shut down waiting for cement to set around the casing.

In the Orange Pool, the Sun Oil Co.'s No. 3 Brown in the southeast extension, is drilling around 3,800 feet and No. 4 at 1,234 feet. It is rigging No. 2 Gunstream to work over. The Brownie Babbittee Oil Co.'s No. 1 Brown is at 3,870 feet. The Sinclair Oil & Gas Co.'s No. 6 Granger is showing oil at 4,410 feet. It was deepened. The Gulf Co.'s No. 5 Pevito is at 4,235 feet and No. 2 Pevito deepening at 3,345 feet. No. 12 Hager fee is rigging and No. 13 Hager fee is drilling at 4,810 feet. The Rycade Oil Co.'s No. 1-E State land is below 1,235 feet.

In the old part of the pool, the Atlantic Oil Producing Co.'s No. 1 Moore is deepening at 2,845 feet. The Humble Oil & Refining Co.'s No. 20-B Chesson is drilling deeper at 3,954 feet and No. 8 Winifree is around 4,900 feet. The Orange Petroleum Co.'s No. 3 Chesson is at 1,765 feet. The Supreme Oil Co.'s No. 1 Jackson is at 3,765 feet. The Cameron-Anderson Co.'s No. 2 State land is shut down. The Kishi Development Co.'s No. 2 Smith-Foreman is resuming drilling at 3,100 feet.

On the south side, the Gulf Co.'s No. 1 Hammam is below 2,700 feet. No. 8 Winifree is at 2,650 feet. No. 1-A Winifree is at 3,618 feet. On the northeast side, the Sun Oil Co.'s No. 1 Kato is at 4,368 feet. The American National Oil Co.'s No. 1 Winifree is below 4,100 feet and the Orange Production Co.'s No. 1 Gum Island is around 2,000 feet. On the northwest side, the Gulf Co.'s No. 6-A Kishi-Lang is taking a core of the formation at 3,915 feet. Derrick is up for No. 1 Williams by McClain and others. On the west side, the Pilot Oil Co.'s No. 1 Aronson is below 2,100 feet.

### Goose Creek Pool

In the Goose Creek Pool, the Gulf Production Co.'s No. 10 Paddock is drilling at 1,235 feet. No. 2 Hirsch in the bay is at 4,450 feet and No. 5 State land in the bay is rigging to work over. No. 28 Beaumont, another bay shore test, is below 3,365 feet. No. 3 H. Galliard is fishing at 4,500 feet and No. 12 Tabb is drilling at 365 feet. The Humble Oil & Refining Co.'s No. 54 Smith is at 2,145 feet. No. 24 Galliard Peninsula is below 4,235 feet and No. 26 below 4,480 feet. No. 2 Harrell is working over. The Gulf Coast joint No. 19 Galliard is rigging to work over. The Sun Oil Co.'s No. 16-B Smith is below 1,565 feet.

In the Sour Lake Pool, the Lakeview Oil Co.'s No. 3 Minor is at 896 feet and the Star Oil Co.'s No. 1 Lynn is below 1,100 feet. The Gulf Production Co.'s No. 57 Hardin-Tarver is deepening. In the Saratoga Pool, the Rio Bravo Oil Co.'s No. 83-B is drilling at 2,455 feet. The old Batson Pool shows a revival with the Gulf Production Co.'s No. 155 Wing drilling at 1,165 feet, the Ada Bell Oil Co. rigging No. 65 Honeymoon, the Acorn Oil Co. rigging No. 48 Parafine and S. R. Buchanan No. 72 Milbome.

The Rycade Oil Co.'s deep test off the dome at Spindletop is drilling below 4,235 feet. Sheffield and Telshaw has a derrick for No. 1 Rowe and the Selma Oil Co. is rigging No. 3 Chaisson. In the Markham Pool, the Rycade Oil Co.'s No. 2 Hudson is below 3,235 feet and No. 1 Gray is drilling at 411 feet. The Schulte Oil Co. No. 1 Hawk, a gasser, is shut down.

The Mutual Oil Co. set 6⅝-inch casing in No. 1 Weems on the west side of the dome at Blue Ridge at 3,900 feet. The Texas Co.'s No. 11 Robinson on the same side, is drilling at 3,000 feet. The Sun Co.'s No. 1 Ritter on the north side of Pierce Junction is below 4,000 feet.

At Damon Mound, the Sinclair Oil & Gas Co.'s No. 8 Becker is shut down, with 6⅝-inch casing set at 2,850 feet. This test is an attempt to penetrate the heaving shale beds on the south, southeast and east sides of the dome. It is said work will be resumed soon, using oil instead of water to drill with. The company is working over No. 2 Mock. The Humble Oil & Refining Co. has started No. 2 Smith. At West Columbia, the only work being done is by The Texas Co., which is trying to pull the liner in No. 13 Hogg at 3,250 feet. At Big Creek in Fort Bend County, the Gulf Production Co. and Snowden and McSweeney's joint No. 9 Davis is drilling below 2,700 feet and No. 10 at 724 feet with a location for No. 11 Davis. Rich and others' No. 1 Ahler is idle. The Pathfinder Oil Co.'s No. 1 Davis is below 2,075 feet.

In the Vinton (La.) Pool, the Sun Oil Co.'s No. 2 Johnson is below 1,800 feet. The Edgerly Petroleum Co.'s No. 2 Vincent is at 2,045 feet. The Vinton Petroleum Co.'s Nos. 1 and 44 Gray are rigging as is Wilson-Broach's No. 3 Parks. The Seiss Syndicate's No. 8 Green is drilling below 1,565 feet. Marrs McLean's deep test in No. 5 Gray is drilling below 3,600 feet. The Just Oil & Refining Co.'s No. 2 Lyons is fishing at 2,625 feet. The Gulf Refining Co.'s No. 31 Vincent is drilling at 2,235 feet and No. 26 G. N. G. is working over. The Texas Co.'s joint No. 3 is below 2,200 feet.

In the Edgerly (La.) Pool, the Gulf Refining Co. is working over an old hole on the Bright-Penn and the Cameron Production one on the Hunter. In the Jennings (La.) Pool, The Texas Co.'s No. 19 Latrielle is drilling at 1,900 feet and the Rycade Oil Co.'s No. 2 Latrielle is rigging.

In Cameron Parish, the Johnson Bayon Prospecting Co. is drilling No. 2 McManus, a formation test. The test in St. Landry Parish is below 1,800 feet.

### Luling Field

The advance of 25 cents for the Luling light gravity field in Caldwell County, has stimulated activity there and across the San Marcos River to the southwest into Guadalupe County. Some 65 wells are now producing, with an estimated output of 12,250 bbls., which could easily be increased if all the wells were allowed to flow freely. The largest operators are the United North and South Oil Co., Magnolia Petroleum Co., Grayburg Oil Co. and Rio Bravo Oil Co. The potential output of these four is approximately 20,000 bbls. per day.

During the week, the United North and South Co. finished No. 6 Hardeman in the original section of the field, with an initial flow of 1,000 bbls. per day. The producing lime is found at an average depth of 2,150 feet. The Royal Oil Co. deepened No. 1 Tabor, increasing its flow to 800 bbls. Some difficulty has been experienced from water encroaching on the sides of the structure and engineers from the Bureau of Mines have been sent to the field to study the situation.

(Continued on Page 92)

# Mr. Oil Operator

You do not need to use a so-called "quick setting agent" in your cement when the cement is mixed by the new process invented by Erle P. Halliburton.

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# Fields of the Central West

By Whit

**Ohio Oil Co. finds 10-bbl. pumper and Dave King and others 25-bbl. pumper near old McMurray gusher farm in Allen Township, Hancock County, Ohio. Jackson County, Illinois, development. Union Gas & Oil has producer flowing 25 bbls. in North Weir, Kentucky. Leasing activity in old Lima Field.**

FINDLAY, Ohio, Feb. 4.—Advances in the market price of oil have been made in every section of the Central West fields, and were it not for the bad weather and almost impassable roads there would be a great amount of new development work started.

Not for years has there been as much leasing in the old Lima Field of northwestern Ohio and pretty much everything in sight has been taken up for development purposes. Operators are planning for deeper drilling in the Trenton Rock formation, for it is known that oil has been found as deep as 510 feet in this formation, while the older wells were drilled less than 100 feet in. Territory outside of the boundary of the old producing areas is also being gathered up. In the Trenton formation there are many crevices and when one of these is found by the drill and contains oil, it usually means an excellent producer like some of those recently found in the heart of the old Wood County Field around Bowling Green, Cygnet, Rudolph, North Baltimore and other spots.

During the week the Ohio Oil Co. reported its No. 32 on the Hugh McMurray farm, Section 14, Allen Township, Hancock County, south of North Baltimore and between there and Findlay. This well is 925 feet from the north line and the same distance from the east line of the farm, and northwest across the farm from the old No. 1, which was without doubt the greatest gusher ever developed in the Trenton Rock formation, with a production estimated at 42,000 bbls. flush in 1893 when the gusher was brought in. The new well is estimated as a 10-bbl. pumper. In the same township, and directly east of the McMurray farm, Dave King, Jr., and others drilled in their No. 17 on the northeast corner of the E. C. Showman farm, Section 11, for a 25-bbl. pumper. This well is directly northeast from the old-time McMurray gusher. The Showman lease was first developed by Lou Langmade of North Baltimore and numerous excellent wells were found on the lease with an occasional dry hole adjoining the big wells, showing the territory is on the crevice order, for surrounding the old McMurray gusher on four sides were dry holes. In the McMurray area the territory is much like that located at the corporate limits of Toledo, just out of Ironville, where in the latter '90's the well on the Miller Club House tract known as the Klondike well was brought in. When this well was drilled into the sand, it was considered of little value and one of the owners offered to sell his one-quarter interest for $25 with no takers, but after the shot a different story was told, for the shot opened a crevice and the well produced 2,200 bbls. the first 24 hours and today is on the pump and doing around 2½ bbls. Wellers were drilled close up on all sides of this freak well, but none ever produced a quart of oil.

Outside of the two new wells in the McMurray area there were but two others reported for the week from the Lima Field. In Granville Township, Mercer County, H. J. Thompson's No. 2 Ben F. Post farm, Section 30, pumped 5 bbls., while in Allen Township, Ottawa County, and southeast of Toledo, John Weber's No. 3 on the Mary Bringe, Section 11, pumped 5 bbls. from a depth of 1,339 feet.

Across the Ohio line into Indiana leasing has been active for some time, as operators are picking up blocks of acreage along the Mississinewa River from the Albany-DeSoto Pool, in Delaware County, Indiana, through Jay County, into Ohio, and this area is to get a heavy play as soon as the weather moderates so that work can be done. The fact that the Hotmire Pool, in Pike Township, Jay County and Ward Township, Randolph County, is showing such fine producers from time to time is encouraging the leasing in Indiana all along this well known stream. There is hope of a connection being found between the Indiana production and the Fort Recovery Field of Mercer and Darke counties, in Ohio.

### Central Ohio Field

A few completions are reported from the Central Ohio Field and a number of new locations have been staked off, while other locations have started spudding. In Cannan Township, Wayne County, the Ohio Fuel Gas Co.'s No. 1 on the R. H. Kammerer, Section 14, is showing for a 10-bbl. oil well and close around 500,000 feet of gas. The Logan Gas Co.'s No. 3 W. and N. Notestone, Section 20, and No. 1 Charles Kellert, Section 19, are fair gas wells. In Plain Township, same county, the East Ohio Gas Co.'s No. 4 C. O. Portz, Section 36, is reported as dry. In Wayne Township, Burton, Morgan and others have started the drill at No. 2 Everett Stone, Section 4.

In Monroe Township, Holmes County, the Ohio Fuel Gas Co. has an average gas well at a test on the M. H. Schrack, Section 28. The East Ohio Gas Co. is drilling No. 3 C G. Jarvis, Section 11, same township. The Ohio Oil Co. is drilling a wildcat well on the Ernest Cornell, in Section 22, Morrow Township, same county.

In Lick Township, Jackson County, the Ohio Fuel Supply Co. is getting ready to start a test on the Harry Hughes 80 acres, Section 23, and for No. 1 on the John Johnson 114 acres, Section 27, Franklin Township. Same company has made a location for a test on the J. F. Jividen 35 acres, Section 19, Sutton Township, Meigs County.

Burton, Morgan & Stephens made a location for a second test on the Arthur W. Nettleton 42 acres, Lot 71, Medina Township, Medina County. In New York Township, same county, the Logan Gas Co. is drilling a test on the G. L. Morelock, Section 7. In Wetfield Township, Mayes and others are drilling No. 1 Martha E. Cole, Lot 50. In Grafton Township, Lorain County, Hulse & Koontz are drilling No. 1 Jo Degnan, Lot 90.

In Hanover Township, Ashland County, the Ohio Fuel Gas Co. is drilling No. 1 R. Waddle 13 acres, Section 17, and No. 2 on the J. T. Jones 52 acres, Section 18.

### Illinois Field

No completions were reported for the week in the older Illinois Field, but plans are perfected for a large amount of work, not alone in the old producing regions but in many parts of the State, especially along the Mississippi side and the drilling of a number of tests across the big river in Iowa, where the formations are identical with that on the Illinois side.

Roy E. Diament of Bradford, Pa., writes that he has just spent two weeks in the new field being developed in Jackson County, in the southwestern part of the State, south of the Waterloo Field. Mr. Diament says the Gerdering well of the Mid-Egypt Oil & Gas Co., in the Ava district of Jackson County, is holding at 10 bbls. an hour when under the pump.

### Eastern Kentucky Field

Operators are getting busy in the Big Sandy district of eastern Kentucky, and are experiencing difficulty moving material over the present roads. Only a few completions are reported and new locations are being made where the camps have supplies on hand. The Cumberland Pipe Line Co., for the week handled a total of 76,369.24 bbls. of crude from the wells of eastern Kentucky covered by its pipe system for a daily average of 12,728.21 bbls. Just as soon as all wells are under the pump, this production will grow rapidly, as the Weir and Berea sands are noted for their longlived production.

In the North Weir Field of Lawrence-Johnson counties, the Union Gas & Oil Co.'s No. 7 Parish Sparks farm, is estimated at 25 bbls. flush, with No. 5 L. H. Skaggs, No. 19 Proctor Sparks, No. 19 J. H. Skaggs, No. 5 E. H. Skaggs, No. 4 D. H. Ferguson and No. 3 James Dials, starting drilling, and location made and machine moving for No. 20 Proctor Sparks farm. The Cumberland Petroleum Co. is starting No. 6 N. M. Boggs farm, and the Indian-Tex Petroleum Co. is drilling No. 3 W. L. Gillam 50 acres, and No. 8 J. C. Gillam farm.

In the South Weir Field of Johnson-Magoffin counties, the Carroll Oil & Gas Co.'s No. 1 on the Tom Hays farm, is estimated at 500,000 feet of gas and its new well on the James Dorton farm, about the same volume. The Atlantic Oil Production Co.'s No. 1 Darius Conley farm, estimated at 5 bbls., and R. G. Gillespie's No. 12 Darius Conley farm, estimated at 10 bbls.

In Owsley County, the Petroleum Exploration Co.'s No. 1 Burgoyne Bother farm, is estimated at 2,600,000 feet of gas and No. 2 Harvey Price farm, at 400,000 feet. This company is drilling No. 1 H. H. Manius and No. 3 Harvey Price farm. In Morgan County, the same company drilled a 200,000-foot gas well in No. 1 Kendall Bros. farm and is drilling No. 2 Elizabeth Amy farm.

In the Irvine Field, of Estill County, McConkey & Watkins' No. 21 A. J. Rawlings, came in a dry hole.

In Wayne County, the Clark Oil & Gas Co.'s No. 5 A. W. Campbell farm; George W. Smith's No. 3 George Phipps farm and Marsh, Shearer and others' No. 2 J. A. Brown farm, were all dusters. The last named firm is drilling No. 3 A. J. Brown farm.

The Canada Peak Oil Co., on Lick Fork, in Bell County, north of Middlesboro, has been delayed in its wildcat test at a depth of 370 feet, where a cave was encountered just below a hard sandstone ledge. The cave was hit by the drill close to the ledge slanting into it about 3 feet and becoming wedged, and it took considerable time to loosen it. The cavity made was filled with a couple of loose rocks. J. S. Wheeler of the Petroleum Exploration Co. of Lexington, spent some time at the well and was much interested.

The hearing for an injunction filed by the United Fuel Gas Co. against the Kentucky Railroad Commission was called recently in Federal Court at Covington. The purpose of the hearing was to determine whether the rate fixed by the Railroad Commission is sufficient, or the act giving the commission power to act is constitutional. The whole record made before the Railroad Commission was submitted to the court and some additional evidence was taken. Each side has authority to file affidavits and the time consumed will last several weeks. It is expected the case will be ready for trial by March 4.

The Standard Oil Co. of Kentucky has constructed a new station at Adairville, in Logan County, to serve the territory with gasoline and kerosene. The station will be in charge of A. L. Smith of Russellville.

# Kansas Oil Field News

By C. D. Lockwood

Operations in the Kansas fields showed very little change during the past week, and little of interest was reported. Some new work was started in the wildcat areas, but the operations, on the whole, were insignificant. An Elk County well, a half mile from production, found some oil in the Wilcox sand at 3,018 feet, filling up 250 feet through 2,600 feet of water, with the bit 2 feet in the sand. It was C. E. Roth and others' No. 1 Hanna, CNL SW, Section 13-29-8. The M. M. Valerius Oil Co.'s Russell County well, SW cor. SE Section 8-12-15w, was deepened to 3,036 feet and swabbed 190 bbls. one day. At that depth however, the temperature of the oil increased from 34 degrees to 70 degrees, which is believed to be an indication that it is nearing water. It will probably not be deepened any more for the present.

A summary of operations in the Kansas fields for the week ended January 26 shows 33 locations, 68 rigs, 73 wells drilling, 78 wells shut down, and 11 completions, a total of 263 operations. In comparison with the figures for the previous week, this is an increase of 5 locations, and 10 wells shut down, while it represents a decrease of 12 wells drilling and a loss of 4 rigs. The total shows a gain of 4.

In Butler County, the Ramsey Petroleum Co. was fishing for pipe at 2,513 feet in its No. 1 Hay, SW cor. Section 16-23-6. The Yates Oil Co.'s No. 5 Yates, CEL SW SE. Section 36-27-5, had a showing of oil in sand at 2,622-27 feet but was abandoned as dry with a hole full of water at 2,675 feet. The Empire Gas & Fuel Co.'s No. 2 Clark, C SW NE NW, was a 10-bbl. producer following a 20-quart shot in sand at 2,748-55 feet.

### Elk County Gassers

In Elk County, Reynolds & Rhoton were drilling their No. 1 Porter, C NW NW NW, Section 18-29-9, at 650 feet. A gasser good for 6,500,000 feet was found in Mitchell and others' No. 3 McIntyre, C SW NW, Section 4-30-9, in sand at 1,740-46 feet. Another gasser was completed by Junker and others in their No. 1 Clubine, NW cor. Section 35-29-9, in sand at 1,484-95 feet, produc-

(Continued on Page 112)

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# Pennsylvania-West Virginia

By D. S. Wakenight

**Carnegie Natural Gas Co. gets 15-bbl. well in Wetzel County, West Virginia and 20 to 25-bbl. producer near Mount Morris in Greene County, Pennsylvania. Pure Oil Co. completion in Coshocton County, Ohio, makes 35 bbls. first 24 hours. Perry Petroleum Co. well in Coal Township, Perry County, 18.**

PITTSBURGH, Pa., Feb. 4.—Despite the fact that the West Virginia fields are completing more gas wells than oil producers, operators keep pegging along, content with an occasional light pumper. In Center district, Wetzel County, the Carnegie Natural Gas Co. has drilled a test on the James McGuffey farm into the Gordon sand, good for 15 bbls. a day. In the same district, the Manufacturers Light & Heat Co. has a fifth sand duster at a test on the Patrick Clark farm. The Johns Gas Co. got a Gordon sand gasser at No. 4 on the W. B. Peterson farm. In Clay district, Monongalia County, Martin & Co. have a salt sand gasser at a test on the N. P. Fetty farm. In Lincoln district, Marion County, the Peerless Oil Co. has now drilled through the Gordon sand on the Andrew Toothman farm. It is a gasser.

The Hope Natural Gas Co. is testing for oil in the salt sand on the W. L. Taylor farm in Washington district, Calhoun County. In the same district, the Euclid Oil & Gas Co.'s test on the Howard Lamb farm is dry in the Big Injun sand and Berea grit. It may probably make a lighter pumper in the salt sand. In Simpson district, Harrison County, the Aizpurin Oil Co.'s test on the Bertha Maxwell farm, is a gasser in the Big Injun sand.

### Deep Well Light Pumper

In Walker district, Wood County, the Hope Construction & Refining Co. has plugged back to the Gordon sand its deep well on the Volcanic tract, showing for a 5-bbl. pumper from that level. In Courthouse district, Lewis County, the same company has drilled through the Benson sand its old No. 1 on the J. B. Watson farm, a fair gas well in the lower sand. This well was drilled to a total depth of 4,370 feet. In Central district, Doddridge County, Boyce & Dotson have a gasser in the Squaw sand on the T. V. Smith farm. In West Union district, E. H. Piggott & Co. completed a gasser in the Big Injun sand at a test on the Alpha Rollins farm. On Elk River, Big Sandy district, Kanawha County, the United Fuel Gas Co. has completed in the Weir sand No. 3 on the L. V. Koontz farm, a gasser good for 1,500,000 feet a day.

### Ritchie County Completions

Of all the oil and gas producing counties in West Virginia, Ritchie County continues to hold first place in active development work. In Union district, Ira Cox completed in the Squaw sand his test on the J. H. Cool heirs' farm. It is dry and abandoned. In Grant district, Robert Elder & Co. have a light salt sand pumper on the J. R. Hargarber farm. Braden & Co. drilled a test on the P. C Moats farm through the Squaw sand and dry. It has been abandoned. Schlagel & Freid have now completed and shot in the Maxon sand No. 18 on the Seelmon Wells farm, in Union district, Tyler County. It is a light pumper. In De Kalb district, Gilmer County, C. W. McCall & Co. have a duster in the Big Injun sand at a second test on the Miller heirs' farm. On Dunkard Mill run, Lincoln district, Marion County, the Fairmont Gas Co. drilled a test on the Lesly Ice farm through the fifth sand and dry.

In Union district, Ritchie County, the Hope Construction & Refining Co.'s second test on the Azariah Beel farm has been drilled through the Big Injun sand and dry. In the same district, the Star Oil & Gas Co. drilled its No. 4 on the Moses Spencer farm deeper and got a gasser in the Big Injun sand. McCall & Co.'s test on the G. W. Sage farm in Center district, Gilmer County, is a gasser in the Maxon sand. In the same district, the Curtis Oil Co.'s No. 4 on the Lydia J. McKinney farm is a salt sand gasser. On the head waters of Big Sancho Creek, Centerville district, Tyler County, the Carter Oil Co. has drilled a test on lease No. 2 on the J. S. Hamilton farm, good for 6 bbls. a day in the Cow Run sand.

### Gassers in Cabell County

Operators are pushing ahead with development work in the gas pool in Grant district, Cabell County. On Little Two-Mile Creek, the Aetna Oil & Gas Co. has a fair gasser in the Berea grit at No. 3 on the R. W. Williams farm. In the same district, on Indian Fork, the Harshbarger Oil & Gas Co. completed and shot in the same formation a light gasser on the Morris Jordan farm. On Charley's Creek, the Aetna Oil & Gas Co. has rig completed for another test on the H. H. Wallace farm. On Straight Fork of Buffalo Creek, Carroll district, Lincoln County, the Cambridge Gas & Carbon Co. has started to drill a test on the Chauncey Dillon farm. In Curtis district, Roane County, the United Fuel Gas Co. completed in the salt sand No. 4 on the Thomas Allen farm, showing for a 5-bbl. pumper. This well being an oil producer has been turned over to the Ohio Fuel Oil Co., holder of the oil right on this farm.

In Freeman's Creek district, Lewis County, the South Penn Oil Co. drilled its test on the Ivan Keyser farm through the Gordon sand and found nothing. It was then plugged to the bottom of the Big Injun sand and shot. It is a small gas well. Myers & Co. completed a second test on the Isaac Ashton farm in Buffalo Township, Brooke County, a fair gasser in the Berea grit, 1,500 feet north of the first test on the same farm. In the Henderson Field, Williams district, Wood County, J. E. Johnson's No. 5, on the H. H. Uhl farm, is dry in the first Cow Run sand.

In Ten-Mile district, Harrison County, Jesse F. Randolph is hauling tools to a location on his own farm. In the same district, D. C. Louchery is building a rig on his farm. In Grant district, the Hope Natural Gas Co. has started to drill on the B. F. Freeman farm. The Philadelphia Oil Co. is building the rig for a second test on the Martha Rowand farm, in Mannington district, Marion County. In Church district, Wetzel County, the Pure Oil Co. is still fishing for a string of tools on the T. P. Lemley farm. In Troy district, Gilmer County, the Carnegie Natural Gas Co. is rigging up on the E. M. Talbot farm. The same company has started to drill on the Martha E. Frum farm, in West Union district, Doddridge County. In Freeman's Creek district, Lewis County, the Hope Natural Gas Co. is fishing for a bit on the Thomas Fahey farm. In Collins Settlement district, Newton Cayton & Co. are drilling at 2,460 feet on the T. R. Synder farm. In Courthouse district, the Weston Glass Co. is fishing on the J. W. Crowl farm. In Southwest district, Doddridge County, the Beulah Oil & Gas Co. started to drill on the John Gray heirs' farm. In Center district, Gilmer County, the Hope Natural Gas Co. is rigging up on the John Arbuckle farm. The same company has abandoned its location on the Clinton Shock farm, in Sherman district, Calhoun County.

### Braxton County

In Otter district, Braxton County, the Star Oil & Gas Co. is due in the Big Injun sand on the Frank Waldeck farm. In Salt Creek district, Miller & Simmons are rebuilding the rig at their test on the R. Q. Dennison farm. In Center district, Gilmer County, the Leroy Oil Co. is building rigs on the L. R. Moore and F. N. Gainer farms. In Currie district, Putnam County, the Putnam Oil & Gas Co. has a rig up on the Noah Wheeler farm. In the same district, the United Fuel Gas Co. has rig material on a location on P. H. Young farm. In Union district, Lincoln County, Columbia Gas Co. has a rig up on Robert Lovejoy farm. The United Fuel Gas Co. has a part of the rig material at a location on the Charles P. Stowers farm. The Cambridge Carbon Co. has a rig up on the Arvil Adkins farm. In Carroll district, Lincoln County, the Laurel Development Co. has shut down for casing on the Charles Malone farm. In New Milton district, Doddridge County, Trainer & Travis started to drill on the Frank Maxwell heirs' farm. In Greenbrier district, the Clarksburg Light & Heat Co. is due in the Big Injun sand on the W. A. Hinkle farm. In Sardis district, Harrison County, the same company is drilling on the Elma J. Robey and Lettie G. Gaines farm. In Ten-Mile district, the Raccoon Oil & Gas Co. has a rig up on the George Harbert farm. In Sardis district, the Hope Natural Gas Co. is starting on the E. L. Davis farm. In Murphy district, Ritchie County, Haddox & Co. are rigging up on the L. S. Smith farm. The Chemical Oil Co. has machinery and rig material at a location on the D. M. Miller heirs' farm. In the same locality, Hays & Roberts have made a location on the C. Hardick farm.

### Prolonged Fishing Job

The U. S. Stamping Co. is still fishing at a second test on the Catherine Hasler farm in Union district, Marshall County. In the same district, George P. Wasmuth is rigging up on the John Otto farm. In Center district, Wetzel County, the Carnegie Natural Gas Co. has started to drill on the J. Rufus Long farm. On Lamb Run, Murphy district, Ritchie County, A. H. Smith has started to drill a test on the H. F. Andrews farm. In the same district, on Leatherbark run, the Hope Natural Gas Co. has the rig completed for a test on the R. W. Stewart farm. The same company has a rig up on the J. B. Gainer farm in DeKalb district, Gilmer County.

### Southeastern Ohio

Since there is so very little doing in the deep sand territory in southeastern Ohio, the new production is very small. In the shallow territory in Newport Township, Washington County, O. S. Reckard & Co. have completed a test on the F. F. Dana farm, showing for a light pumper in the salt sand. In York Township, Section 32, Morgan County, the Sun Oil Co.'s test on the Charles Knapp farm is a light pumper and a gasser good for 75,000 feet a day in the Berea grit. In Lot 22, Franklin Township, Licking County, Ralph Brothers completed in the Berea grit No. 6 on the Boy Scouts' farm, showing for a 3 or 4-bbl. pumper. The Pure Oil Co. completed in the Clinton sand its second test on the R. J. Graham farm, in Clark Township, Coshocton County. It produced 35 bbls. the first 24 hours after the shot and will be good for 15 or 20 bbls. a day.

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# News of Mexican Fields

By George Blardone

TAMPICO, Mex., Feb. 2.—Salt water has invaded Lot 4, Cacalilao sector of Panuco during the past 24 hours, causing a drop in production of 23,000 bbls. daily. The Royal Dutch Shell was hit the hardest its production at Cacalilao being reduced to about 12,000 bbls. The Transcontinental Oil Co. is second in losses which are estimated at about 9,000 bbls. The offsets of the Mexican Sinclair Co. are not as yet affected.

Best completion of past week in Mexican fields is International Petroleum Co.'s No. 50, Lot 4 Cacalilao, in the Panuco Field, which, at the shallow depth of 1,715 feet, is rated good potentially for 35,000 bbls. Another well of more than passing interest is Mexican Sinclair Petroleum Co.'s No. 12, in Lot 1 Cacalilao, fraction 4-B, which, at the very shallow depth of 1,540 feet, is rated good for 8,000 bbls. This latter well, as a matter of fact, caused more comment than the International's potentially larger well. Both were splendid completions. However, Cacalilao is showing a larger percentage of failures than of pay completions. It is spotted and badly spotted in the last analysis. The favorable completions, however, act as an incentive to operators, and this, coupled with the fact that it is the only territory that does hold forth substantial promise, is making it the only real drilling area in the Republic today. Other operations may be best described as desultory.

In the South Fields, while there has been no resumption of drilling reported, pump stations are again in service for the principal producers. There has never been any interruption whatsoever to operations or the movement of oil, in the northern fields.

### Panuco-Cacalilao

Drilling operations in the Cacalilao sector of the Panuco Pool are best described as follows: La Corona Petroleum Co.'s No. 37, Lot 4, is drilling in the San Felipe at 1,500 feet; its No. 49, same, is drilling in limestone at 1,840 feet; its No. 52, same, has cemented 8-inch in the San Felipe at 1,200 feet; its No. 53, same, is drilling at 120 feet; its No. 55 same, is drilling at 100 feet. In Lot 1, Corona's No. 47 is fishing at 1,560 feet; its No. 48 is drilling in the San Felipe at 1,530 feet; its No. 32 is drilling at 740 feet; its No. 50 is drilling at 750 feet in shale, its No. 51 is drilling in a similar formation at 815 feet; its No. 53 is drilling in shale at 420 feet; its No. 56 is drilling in a similar formation at 370 feet; its No. 57 is rigging. International Petroleum Co.'s No. 47, Lot 3, Cacalilao, is drilling in limestone at 1,968 feet; its No. 48, same, is straightening crooked hole at 1,050 feet, in shale; in Lot 4 its No. 52 is drilling in a gray limestone at 2,005 feet, and its No. 57, same, is a derrick. Morrison and others' No. 1, Lot 1, 2-A, is drilled 1,560 feet in the San Felipe, and has shut down to repair boilers. Mexican Gulf Oil Co.'s No. 38,

(Continued on Page 92)

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# Oklahoma Field Operations

By C. D. Lockwood

**Northern edge of Burbank extension apparently outlined by well which has no showing at 2,963 feet; Gushers in Hewitt Field continue to increase in production; Sayre district of Beckham County gets good producer and Pontotoc wildcat good for 25 bbls. Three wells added to Wewoka Field.**

An apparently dry hole that caused the shutting down of several wells north of the Burbank extension, the continued increase in production of gushers recently opened up in the Hewitt Field, a new producer for the Sayre district in Beckham County and the unusually sharp declines of Wewoka and Tonkawa were the outstanding news features of the week in the Oklahoma fields.

The well which apparently outlines the northern edge of the Burbank area was drilled by George Bole in his No. 4, NE cor. NW, Section 4-27-5. A sandy shale was topped at 2,915 feet, but from 2,920 feet to 2,963 feet there was nothing but shale without any showing either of oil or gas. The Roxana Petroleum Corp. has shut down its No. 4, offsetting this well to the east, and the Waite Phillips Co. has shut down its No. 1, offsetting it on the north, and its No. 2, one location further north of No. 1. The Prairie Oil & Gas Co. has also shut down its No. 1, SW cor. SE, Section 34-28-5, a diagonal offset to Bole's well. Other wells nearby may be shut down temporarily pending a decision as to the future policies of the companies in that area.

George S. Bole treated his No. 2, NE cor. SE NW, Section 4-27-5, to a 5-quart shot in sand at 2,918-28 feet and it made 375 bbls. after the shot. The Carter Oil Co.'s No. 2, NW cor. SW SW, Section 10-27-5, was shot with 25 quarts in sand at 2,968-93 feet and the production increased from 27 to 45 bbls. an hour. The same company's No. 1, SE cor. SW, same section, increased from 29 to 35 bbls. an hour after a shot of 20 quarts in sand at 3,025-45 feet. The Roxana Petroleum Corp. shot its No. 2, SE cor. NW, Section 4-27-5, with 70 quarts in sand at 2,865-2,916 feet and it made 800 bbls. The Carter Oil Co.'s No. 2, SW cor. NW NE, Section 22-27-5, increased from 12½ to 29 bbls. an hour after a shot of 15 quarts in sand at 3,026-36 feet.

### Hewitt Increases

The gushers that were opened up in the Hewitt Field when the mutual shutdown agreement in that area ended continued to increase in production due to deepening and while individual gauges could not be obtained, as the three tremendous producers on the Carter Oil Co. and Southwestern Oil Co.'s leases were flowing into the same tankage, the combined output of these three alone was 13,152 bbls. for the 24 hours ending at 7 a. m. Saturday. No. 40 Noble, C SE NW NE, Section 21-4s-2w, which topped the pay at 3,052 feet, where it flowed 3,832 bbls. the second 24 hours, and 4,519 bbls. the third day, was deepened to 3,060 feet. No. 41 Noble, C NW SE NE, same section, was deepened to 2,899 feet in lime topped at 2,892 feet. This well made 2,374 bbls. the first 24 hours, 3,192 bbls. the second day, and 3,347 bbls. the third. No. 42 Noble, CSW NE NE, same section, was deepened to 2,945 feet in pay reached at 2,930 feet. This well was flowing at the rate of 165 bbls. an hour before deepening. A rig was in place and tools were being moved in for the Carter's No. 44 Noble, C SE SE NE, same section, a twin to No. 28, and for No. 45 Noble, C SW SE NE, same section, a twin to No. 30. The Carter's No. 20 Ward, C NE NW NE, same section, produced 2,628 bbls. the first 24 hours, 2,883 bbls. the second 24, and 2,727 bbls. the third day from the pay at 3,075-3,112 feet.

Rigs were in place for the Carter Oil Co. and Southwestern Oil Co.'s No. 16 Hefner, C NW NE SW, Section 22-4s-2w, and for Westheimer's No. 15 Dillard, C NE SW SW, same section.

The important extension of the deep pay a half mile to the southeast, made by the Wolverine Oil Co. in its No. 111 Dillard, C NW NW SW, Section 22-4s-2w, looks better as the days go by and the production steadily increases. On the fifth day the production had climbed to 1,030 bbls. from pay topped at 2,780 feet; the latest gauge on it read 1,250 bbls., and the gravity of the crude was reported to be improving.

The Magnolia Petroleum Co.'s No. 26-A Woodruff, CSL SE SW SW, Section 15-4s-2w, which had a lime show and 1,400 feet of oil in the hole at 3,324-30 feet, was drilling ahead at 3,420 feet. The same company's No. 11, C SE SE SW, Section 16-4s-2w, was drilling at 690 feet. The Carter Oil Co. was drilling by tools at 2,148 feet in its old well, No. 6 Woodruff, CWL, NW SW, Section 15-4s-2w.

### Burbank Production

The daily average production in the Burbank Field for the week ended January 30 was as follows:

| Company— | Wells | Bbls. |
|---|---|---|
| Carter Oil Co. | 170 | 9,875 |
| Comar Oil Co. | 7 | 277 |
| Cosden Oil & Gas Co. | 68 | 1,499 |
| Devonian Oil Co. | 16 | 439 |
| Gardner Pet. Co. | 20 | 677 |
| Gypsy Oil Co. | 160 | 14,252 |
| Kewanee Oil & Gas Co. | 12 | 201 |
| Laurel Oil & Gas Co. | 16 | 405 |
| Lorraine Pet. Co. | 15 | 342 |
| Midland Oil Co | 5 | 133 |
| Mid-Kansas Oil & Gas Co. | 26 | 4,348 |
| Peters & Oliphant | 1 | 147 |
| Phillips Pet. Co. and Delmar Oil Co. | 3 | 3,860 |
| Phillips Pet. Co. | 34 | 6,393 |
| Phillips Pet. Co. and Skelly Oil Co. | 149 | 8,041 |
| Prairie Oil & Gas Co. | 90 | 2,124 |
| Producers & Refiners Corp. | 28 | 780 |
| Roxana Pet. Corp. | 57 | 1,008 |
| Simons, Moore et al | 29 | 534 |
| Sinclair Oil & Gas Co. | 136 | 7,360 |
| Skelly Oil Co. | 9 | 2,310 |
| Tidal-Osage Oil Co. | 41 | 1,076 |
| Twin State Oil Co. | 8 | 300 |
| Total | 1,100 | 66,381 |
| Kay County— | | |
| George S. Bole | 1 | 1,033 |
| Carter Oil Co. | 4 | 1,639 |
| Comar Oil Co. | 10 | 3,543 |
| Cosden Oil & Gas Co. | 3 | 1,966 |
| Gypsy Oil Co. | 7 | 3,830 |
| Laurel Oil & Gas Co. | 1 | 21 |
| Phillips Pet. Co. | 13 | 8,495 |
| Mid-Kansas Oil & Gas Co. | 4 | 1,783 |
| Prairie Oil & Gas Co. | 1 | 423 |
| Pure Oil Co. | 1 | 430 |
| Roxana Pet. Corp. | 2 | 884 |
| Dye, Tomlinson et al | 6 | 1,208 |
| Skelly Oil Co. & Phillips Pet. Co. | 14 | 1,702 |
| Sinclair Oil & Gas Co. | 2 | 2,736 |
| The Texas Co. | 2 | 1,112 |
| Twin State Oil Co. | 6 | 1,652 |
| Total | 77 | 32,457 |
| Total Burbank | 1,177 | 98,838 |
| Total last week | 1,153 | 86,980 |
| Difference | 24 | 11,858 |

Daily average pipe line runs from the field were as follows: Gulf Pipe Line Co., 19,036 bbls.; Cosden Pipe Line Co., 7,006 bbls.; Kay County Gas Co., 7,259 bbls.; Osage Pipe Line Co., 2,171 bbls.; Oklahoma Pipe Line Co., 12,600 bbls.; Prairie Pipe Line Co., 4,553 bbls.; Sinclair Pipe Line Co., 10,624 bbls.; Moore Refining Co., 2,054 bbls.; Empire Pipe Line Co., 857 bbls., Ozark Pipe Line Co., 1,323 bbls. Total, 67,483 bbls.

Amounts run to storage follow: Standish Pipe Line Co. 20,668 bbls.; Mid-Kansas Oil & Gas Co., 5,736 bbls.; Twin State Oil Co., 1,296 bbls.; George S. Bole, 783 bbls.; Delmar Oil Co., 1,562 bbls.; Skelly Oil Co., 1,310 bbls. Total, 31,355 bbls.

### Tonkawa Production

The daily average production by companies in the Tonkawa Field for the week ended January 30 was as follows:

| Company— | Wells | Bbls. |
|---|---|---|
| Amerada Petroleum Corp. | 35 | 1,568 |
| Blackwell Oil & Gas Co. | 30 | 1,403 |
| Carter Oil Co. | 6 | 230 |
| Champlin Refining Co. | 2 | 78 |
| Champlin Ref. Co. and Twin State Oil Co. | 1 | 17 |
| Comar Oil Co. | 281 | 16,484 |
| Cosden Oil & Gas Co. and Marland Ref. Co. | 15 | 628 |
| Gypsy Oil Co. | 84 | 6,102 |
| Healdton Oil & Gas Co. | 21 | 2,411 |
| McCaskey & Wentz | 43 | 2,580 |
| McMan Oil Co. | 2 | 21 |
| Pennok Oil Co. | 26 | 1,523 |
| Phillips Pet. Co | 4 | 575 |
| Prairie Oil & Gas Co. | 13 | 841 |
| Sinclair Oil & Gas Co. | 1 | 15 |
| Slick-Comar Oil Co. | 31 | 2,819 |
| Southwestern Pet. Co. | 14 | 867 |
| The Texas Co. | 5 | 32 |
| White Eagle Oil & Ref. Co. | 7 | 643 |
| Total | 621 | 38,837 |
| Total last week | 619 | 39,887 |
| Difference | 2 | 1,050 |

Daily average pipe line runs were as follows: Kay County Gas Co., 17,196 bbls.; Ozark Pipe Line Co., 8,473 bbls.; Gulf Pipe Line Co., 5,137 bbls.; Champlin Refining Co., 3,072 bbls.; Bolene Refining Co., 2,529 bbls.; Empire Pipe Line Co., 965 bbls.; Prairie Pipe Line Co., 841 bbls.; Enid Pipe Line Co., 388 bbls.; Oklahoma Pipe Line Co., 230 bbls.; to lease storage, 6 bbls. Total, 38,837 bbls.

### Wewoka Producers

The Wewoka Pool had three new producers during the week. The Dixie Oil Co.'s No. 1-A Long, CEL SE NW SW, Section 33-8-8, flowed 208 bbls. natural the first 24 hours from sand at 3,200-08 feet. The second 24 hours it made 330 bbls. and the third day 295 bbls. The Independent Oil & Gas Co.'s No. 1 Foster, CNL NE SW NW, same section, topped the sand at 3,149 feet and was flowing 200 bbls. daily while still drilling in sand at 3,160 feet. The Producers & Refiners Corp.'s No. 4 Foster, SE cor. NW NW, same section, made 400 bbls. natural from sand at 3,160-81 feet.

In the Sayre district of Beckham County, a 487-bbl. producer was brought in by Simpson & Hale in their No. 1-A Knight, NW cor. SE NW, Section 32-9-23w. Sand was found at 2,920-28 feet.

A rank wildcat in Pontotoc County created a ripple of interest when it struck a showing of oil, but after swabbing for several days was classified as a 25-bbl. well. It was La Salle and others' No. 1 Lewis, SE cor. NE, Section 31-5-5, and found a hard sand at 1,896-1,912 feet, making one flow.

The Tulsa Country Club Pool was increased by the addition of one producer when the Peer Oil Corp. brought in its No. 4, NE cor. NW, Section 28-20-12, Osage County. Sand was found at 2,040-58 feet, and was good for 1,50 bbls.

### Summary of Operations

While the Burbank production was making a jump of 11,858 bbls. in daily average, during the week ended January 30, reporting 98,838 bbls. daily on that date from 1,177 wells, an increase of 24 producers, the Tonkawa Field was slumping 1,050 bbls. with the addition of two producers, showing 38,837 bbls. from 621 wells on the latter date, and the Wewoka Field was losing the most with a loss of 1,247 bbls. from the same number of wells. The daily average production in that field on January 30 was 9,016 bbls. from 29 wells.

Operations in the State showed a decided gain for the week ended January 26, when there were 73 locations, 220 rigs, 716 wells drilling, 361 wells shut down, and 42 completions, a total of 1,442 operations. In comparison with the previous week, this was a gain of 44 operations, due entirely to an increase of 63 in the number of drilling wells, while the locations decreased by 15 and the wells shut down by 8. There were 3 more rigs and 1 more completion during the latter week.

### Lincoln County Activity

The new area around Key West and Stroud in Lincoln County is getting an active play. The Amerada Petroleum Corp. was spudding its No. 1 Lewis, C SE SE SW, Section 1-14-6, and the same company and Wrightsman were spudding their No. 1 Welch, C NE SE SW, same section. The Roxana Petroleum Corp. was drilling at 390 feet in its No. 4 Zoller, CEL NW SE SW, same section. The same company's No. 1 Zoller, SW cor. Section 1-14-6, offsetting the Union Petroleum & Supply Co.'s discovery well of this pool, produced 1,202 bbls. during its ninth day, and 1,185 bbls. on its tenth day. It came in about two weeks ago for 918 bbls. from sand at 4,093-4-110 feet. The Wolverine Oil Co. and Roxana's No. 1 Jackson, NE cor. Section 11-14-6, another offset to the discovery and a diagonal offset to No. 1 Zoller, topped the sand at 4,098 feet and was good for 400 bbls. the first 24 hours. The same companies' No. 2 Jackson, SE cor NE NE, same section, was drilling at 575 feet in sandy lime formation. The Texas Co.'s No. 1 Jackson, NE cor. SE NE, same section, was drilling at 415 feet.

A rig was on the ground for the Amerada Petroleum Corp.'s No. 2 Lewis, C NE NE NW, Section 12-14-6, and for No. 3 Lewis, C SE NE NW, same section. The J. A. Hull Oil Co.'s No. 2 Benevolent Association, NE cor. NW NW, of the same section, was drilling at 1,130 feet. The company's No. 1 on the same lease, NW cor. Section 12-14-6, was the second well in the pool and so far has been the best producer having made 1,945 bbls. natural of 43.1 gravity oil from sand at 4,077-4,101 feet.

The Union Petroleum & Supply Co. had rigs in place for No. 3 Townsite, C SE NW, Section 12-14-6 and for No. 4 Townsite, CNL NW SE NW, same section. Will's and others had a rig completed for their No. 1 Townsite, a twin location to the Union Petroleum & Supply Co.'s No. 4 Townsite.

Across the line in Creek County, the Roxana Petroleum Corp. was drilling at 395 feet in its No. 1 Coyarka, SW cor. Section 6-14-7.

### Burbank Extension Active

In the Burbank extension, The Texas Co. was spudding 6 wells in Section 3-27-5. They were No. 3 Munroe, NE cor. SW; No. 4 Munroe, SE cor. SW; No. 5 Munroe, CEL NE SE SW; No. 6 Munroe, CEL SE NE SW; No. 7 Munroe, CWL NW SW SW, and No. 8 Munroe, CWL SW NW SW. In the same section, the Phillips Petroleum Co. had rigs on the ground for No. 2 Cooper, CEL SE NE NW, and for No. 3 Cooper, CEL NE SE NW. The same company was building rigs for its No. 11 Cooper, NW cor., and for No. 12 Cooper, CWL SW NW NW, same section. The Roxana Petroleum Corp. had a cellar dug and a rig on the ground for its No. 1 Pappan, CEL SE NE NE, Section 4-27-5.

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and for its No. 10 Pappan, CSL SE SW NE, same section. The Comar Oil Co. staked a location for its No. 2 Mehojah, CEL NE SE SW, Section 4-27-5, and had a rig in place for its No. 6 Barnum, CNL NW NE SW, Section 10-27-5. The Phillips Petroleum Co. was spudding its No. 12 Taylor, CNL NW NE NE, Section 9-27-5.

The Phillips Petroleum Co. was building a rig and moving in tools for its No. 6 Rhodes, CWL NW SW SE, Section 9-27-5. The Mid-Kansas Oil & Gas Co. was spudding its No. 5 Rhodes, NW cor. NE SE, same section, and was building a rig and moving in tools for its No. 6 Rhodes, SW cor. NW SE, same section. Rigs were on the ground for the same company's No. 7 Rhodes, C SE NW SE and No. 8 Rhodes, C SW NE SE, same section. The Sinclair Oil & Gas Co. had a rig on the ground for its No. 5 Woods, CNL NW NE SW, Section 9-27-5. The Prairie Oil & Gas Co. was building a rig for No. 3 Hobson, CSL SW SE NW, and for No. 4 Hobson, C NW SE NW, same section.

In Section 10-27-5, the Cosden Oil & Gas Co. was drilling at 400 feet in its No. 2 Sands, CSL SW SE NW, and was spudding its No. 3 Sands, CSL SE SW NW, at 60 feet; No. 5 Sands, CWL NW SW NW, was drilling at 110 feet; No. 6 Sands, CWL SW NW NW, was spudding at 80 feet; No. 10, NE cor. NW, was drilling at 380 feet; No. 11, CEL SE NE NW, was drilling at 310 feet; No. 12, CEL NE SE NW, was drilling at 385 feet; a cellar was dug and a rig was being moved in for No. 13, C NW SE NW; rigs were on the ground for No. 14, C NE SW NW, and for No. 15, C SE NW NW; and a cellar was dug and timbers were on the ground for No. 16, C SW NE NW.

### Shots Help Production

The Comar Oil Co. was drilling at 300 feet in its No. 4 Barnum, CEL SE NE SW, Section 10-27-5; No. 5 Barnum, CNL NE NW SW, same section, was drilling at 200 feet; No. 6 Barnum, CNL NW NE SW, same section, was spudding at 75 feet. The Carter Oil Co. shot an old well, its No. 3 Clubb, SW cor. Section 10-27-5, with 15 quarts, in sand at 3,039-54 feet, and it made 300 bbls.

The Phillips Petroleum Co. and Delmar Oil Co. were spudding their No. 12, CSL SE SW SE, Section 10-27-5.

The Sinclair Oil & Gas Co.'s No. 3, CWL SW NW NE, Section 15-27-5, Osage County, which topped the sand at 2,993 feet, was shot with 20 quarts in sand at 3,029-49 feet and made 500 bbls. afterward. It had been doing 400 bbls. naturally. The same company's No. 6 CSL SW SE NE, same section, was given a second shot of 30 quarts in sand at 3,030-60 feet and was estimated good for 500 bbls. Sinclair's No. 13, CNL NE NW NE same section was drilling at 200 feet, and No. 14, CNL NW NE NE, same section, was also drilling at the same depth. A cellar was dug and a rig was on the ground for No. 15, C SW NE NE, same section.

The Twin State Oil Co. treated its No. 6 McCassey, CEL SE NE NW, Section 15-27-5, Kay County, to a shot in sand at 2,977-3,007 feet and it made 500 bbls. afterward, an increase of 100 bbls. A rig was on the ground for the company's No. 13 McCassey, CWL SW NW NW, same section. The Comar Oil Co.'s No. 1 Thompson, CEL SE NE SW, same section, was shot with 10 quarts in sand at 2,998-3,008 feet and produced 448 bbls. The same company raised the production in its No. 2 Thompson, NE cor. SW, same section, to 452 bbls. by a shot of 110 quarts in sand at 2,998-3,042 feet. The Comar's No. 7 Thompson, CNL NE NW SW, Section 15-27-5, made 372 bbls. in the first 16 hours after a 20-quart shot in sand at 2,966-76 feet. It had been making 467 bbls. in 24 hours natural before. The Mid-Kansas Oil & Gas Co.'s No. 7, NE cor. SE, Section 15-27-5, which was standing with a hole full of oil, flowed 700 bbls. after a shot of 120 quarts in sand at 3,024-71 feet. The same company's No. 8, CEL SE NE SE, same section, was good for 550 bbls. following a shot of 180 quarts in sand at 3,053-3,122 feet, and No. 9, CEL NE SE SE, same section, which was making 600 bbls. natural from sand topped at 3,113 feet, first oil having been found at 3,140 feet, and total depth 3,169 feet, was shot in sand from 3,145 to 3,169 feet with 60 quarts and was good for 800 bbls. afterward. No. 10, in the SE cor. of the section, was making 1,100 bbls. natural the second 24 hours from oil pay topped at 3,062 feet. The Skelly Oil Co.'s No. 2, CNL NW NE SW, Section 23-27-5, made a 315-bbl. producer after a 20-quart shot in sand at 3,020-52 feet. Best pay was found from 3,015-24 feet.

### Kay and Noble Counties

In northern Kay County, the Vernon Oil & Gas Co. was spudding its No. 1 Wilbur, NW cor. NE, Section 21-29-1e, at 85 feet. George Neber was fishing for tools at 858 feet in his No. 1, SE cor. NW, Section 31-28-1e. The Comar Oil Co. was rigging up its No. 1 Williams, NE cor. SE NE, Section 7-27-2e.

In the Tonkawa Field, an old well belonging to Mannahan and others, No. 1 Slocum, NE cor. SW NE, Section 16-27-1w, was shot with 4 quarts in sand at 3,108-11 feet, and with 10 quarts in sand at 3,140-50 feet, producing 142 bbls. of 42 gravity oil the first 24 hours after the shots, and making 4 bbls. of water. The same interests' No. 2 Slocum, SW cor. NE, Section 16-27-1w, made three flows with total estimated production of 100 bbls. from sand at 3,121-31 feet, and was being cleaned out.

The Alcorn Oil Co. was rigging up its No. 1 Hadley, NE cor. Section 6-26-2e, and the O'Kansas Oil & Gas Co. was moving in rig and pipe for its No. 1 Hall, SE cor. NE SW, Section 14-25-1e.

### Operations in Osage

In the Osage, Smith & Dresser made a 35-bbl. well out of their No. 4, CNL NE SW, Section 27-29-11, by shooting it with 140 quarts in sand at 910-44 feet. The Sidwell Drilling Co. was spudding its No. 2, SE cor. NE NW, Section 4-28-10. The Owen-Osage Oil Co. was also spudding a couple of wells, its No. 274, CSL SW NW SE, Section 28-28-11, and No. 275, NW cor. NE SE, same section. J. J. Scanlin was rigging up his No. 1, NW cor. SW, Section 33-26-8.

The Twin State Oil Co.'s old well, No. 5, SW cor. NE, Section 13-23-8, which found the first break in the lime at 2,148-63 feet, was pumping 100 bbls. of water and 40 bbls. of oil. The Owen-Osage Oil Co. shut in its No. 273, CSL SE NE NE, Section 19-24-11, as a gasser good for 1,500,000 feet in the Bartlesville sand at 1,608-35 feet. The Tidal-Osage Oil Co. staked a location for its No. 12, CWL NW SE NE, Section 24-24-9, and was spudding its No. 3, CEL SE NW, Section 21-24-9. A showing of oil was found in the Mutual Oil Co.'s No. 5, NW cor. NE SE, Section 32-24-8, in sand at 697-712 feet, and it was to be shot. A location was made for the Test Log Oil Co.'s No. 4, CEL NE, Section 16-24-8, and a cellar was dug for the Marland Oil Co.'s No. 1, CNL NW, Section 34-25-8. A rig was in place for the same company's No. 1, NE cor. Section 33-25-8. Henderson & Brown abandoned as dry at 2,710 feet their old well, No. 3, CEL SE NW SE, Section 10-25-8.

A machine was being rigged up for the Owen-Osage Oil Co.'s No. 277, CEL NE SW NW, Section 35-23-11, and the Barnsdall Oil Co. had a rig in place for its No. 17, NW cor. Section 32-21-12. Rex Pyramid's No. 40, CWL SW SW NE, Section 34-22-10, an old well, was drilling at 2,006 feet. The Oklahoma Natural Gas Co. was drilling at 490 feet in its No. 636, CEL SE SE SE, Section 20-20-12. A rig was being built by Kennedy and others for No. 8, C SE SW, same section. The Tidal-Osage Oil Co. was drilling at 400 feet in its No. 2, CSL SW SE, Section 21-20-12, and the Munn Bros. were building a rig for their No. 1 in the NE cor. SW, Section 28-20-12.

### Tulsa County Producer

In Tulsa County, a 25-bbl. natural well was brought in by C. W. Titus in No. 1-A Starr, NW cor. SW, Section 10-19-10. Sand was found at 1,703-23 feet. A rig was on the ground for a test by H. U. Bartlett in his No. 1 Gaylord, NW cor. NE NE, Section 19-19-10, and the Mutual Oil Co. was drilling at 400 feet in its No. 3 Lester, CNL SW NE, Section 10-19-10. John A. Steel's No. 2 Starr, NW cor. SW, Section 4-19-10, was abandoned as dry at 2,142 feet.

In Creek County, the Savoy Oil Co. was drilling at 630 feet in its No. 1 Johnson, NW cor. NE, Section 23-17-8. The Phillips Petroleum Co. had a rig in place for its No. 7 Canada, NW cor. SW SE, Section 14-16-8, and the H. F. Wilcox Oil & Gas Co. had rigs completed for its No. 3-B Harjo, SW cor. SE SW, Section 35-16-8, and for No. 7 Harjo, CEL NE SE SW, same section. The Bu-Vi-Bar Petroleum Co. was rigging up its No. 1 Roberts, SW cor. NW NW, Section 31-17-9.

In Okmulgee County, the Roxoline made a 20-bbl. well out of its No. 5 Campbell, CWL NW SE, Section 24-13-12, by a 60-quart shot in sand at 1,935-64 feet. Salter was spudding No. 7 Kanard, NE cor. SE SW, Section 21-13-12, and Moore and others had a rig on the ground for their No. 2 Beaver, NW cor. NE SE, Section 3-14-13. Lambert was drilling at 400 feet in No. 3 Berryhill, NW cor. SE SE, Section 19-14-13. A duster was abandoned at 3,090 feet by Anderson and others in their No. 1 Jefferson, SW cor. NE, Section 7-14-11, and another by the Ohiokla Oil Co. at 3,717 feet in its No. 1 Thomas, SW cor. NE NW, Section 32-13-11. An old well belonging to Moffett, his No. 3 Summers, NW cor. Section 8-11-12, was producing 4,000,000 feet of gas and 9 bbls. of oil natural from sand at 2,298-2,308 feet. The Kingwood Oil Co. was spudding its No. 1 Byrd, SW cor. NE SE, Section 25-12-13.

### Okfuskee County

In Okfuskee County, a 20-bbl. producer resulted from two shots of 5 and 10 quarts in sand at 3,045-54 feet. It was the Prairie Oil & Gas Co.'s No. 1 Bird, SW cor. SE SW, Section 6-10-10. A small production was found in the Sinclair Oil & Gas Co.'s No. 1 Alexander, NE cor. SE, Section 34-11-11, which made 5 bbls. natural in sand at 2,485-87 feet. Total depth was 2,527 feet. The Atlantic Oil Producing Co. was spudding its No. 1 Smith, SW cor. NW, Section 35-11-11. The Waite Phillips Co. and Independent Oil & Gas Co. were cleaning out their No. 3 Henins, SW cor. SE NW, Section 13-11-11, an old well. The Cusack Oil Co. was spudding its No. 3, CEL NW NE, Section 11-11-11, and Spinney had a rig on the ground for No. 1 Hawkins, SW cor. NW NE, Section 3-11-11. The Anglo-Texas Oil Co. shut down its old well, No. 1 Robinson, SW cor. SE, Section 28-12-11, at 3,005 feet. Henry Avery and others were spudding No. 1 Robinson, SW cor. SE SE, Section 10-12-11. The Texas Co. was drilling at 750 feet in its No. 1 Rector, SE cor. NW, Section 36-12-10.

In Wagoner County, the Livingston Oil Corp. picked up a gas sand good for 1,000,000 feet at 675-85 feet in its No. 1 Birney, SW cor. Section 11-17-16.

In northern Seminole County, the Shaffer Oil & Refining Co. was spudding its No. 1 Little, C SW NE NE, Section 10-10-8, and the Amerada Petroleum Corp. was rigging up its No. 1 Bruner, NE cor. SE, Section 16-10-8. The Large Oil Co. had a rig in place for its No. 1 Add, C NE SE SE, Section 8-9-8.

Near Sasakwa, in the southern part of the county, T. B. Slick and associates had timbers on the ground and some tools for No. 1, NW cor. SE SW, Section 18-6-7.

### Wewoka District

In the Wewoka district, the Magnolia Petroleum Co. was rigging up its No. 2 Parker, SE cor. NW, Section 32-8-8, and the Producers & Refiners Corp. was running the 12-inch pipe at 767 feet in its No. 1 Scott, C NE SW SW, Section 33-8-8. The Dixie Oil Co.'s No. 2 Harris, SW cor. NW NE, Section 32-8-8, was good for 135 bbls. in sand at 3,117-35 feet. The same company was drilling at 775 feet in its No. 5 Foster, C NE SW SW, Section 28-8-8. The Cosden Oil & Gas Co. abandoned the location for its No. 1, NW cor. NE NW, same Section, and the Tidal Oil Co. also abandoned the location for its No. 1, NW cor. Section 18-8-8. The Shawnee Refining Co. and Wewoka Gas Co. abandoned their No. 1 Townsite, CEL NW SW NE, Section 19-8-8, at 1,645 feet.

The 9-9 country in Hughes County was receiving additional attention the past week due to the continued improvement of the Papoose Oil Co.'s discovery well, No. 1 Simon, SE cor. SW, Section 4-9-9, which had increased to 546 bbls. in 24 hours. Corrected sand depth by steel line was 3,328-33 feet. The Transcontinental Oil Co. was spudding its No. 1 Brown, SE cor. NE NW, Section 17-9-9.

In eastern Garfield County, the Sinclair Oil & Gas Co. was drilling at 300 feet in its No. 24 S. Walker, CEL SE SE, Section 24-22-4w, and at 1,100 feet in its No. 9, SE cor. SW NE, Section 19-22-3w.

In Canadian County, Wrightsman and others had a rotary rig in place for No. 1 Porter, SE cor. Section 2-13-8w.

Grady County had another big gasser. It was the American Eagle Oil Co.'s No. 2 McClure, C SE NW, Section 16-4-6, and had a capacity of 28,000,000 feet in sand at 1,338-42 feet. Walter Critchlow was spudding his No. 1-A Cochran, NW cor. SW NW, Section 27-3-5w. The Little Nick Oil Co.'s No. 1 Dryden, C NW NW NE, Section 2-4-8w, was good for 12,000,000 feet of gas in sand at 1,430-58 feet.

In Beckham County, Kadane and others were drilling their No. 1 Van Vacter, SW cor. Section 19-8-21w, at 600 feet.

In Caddo County, Scheetz and others abandoned their test in the NE cor. SW, Section 26-6-10w, at 250 feet.

In Roger Mills County, Martin & Rogers were drilling their No. 1 Kelly, C NW SE, Section 32-12-26w, at 200 feet.

In Stephens County, the Old Colony Oil Co. had a well good for 50 bbls. on the pump from sand at 2,253-56 feet. It was an old gas well. The Fort Ring Oil Co.'s No. 1 Hartley, CNL NE SE, Section 30-1s-8w, was dry and abandoned at 2,157 feet.

A rig was in place for the Midland Oil Co.'s No. 1, NE cor. SE NW, Section 11-1-5w, and tools were being moved in.

In the western part of the county, Walters & McGovern set 21 feet of surface in their No. 1 Brown, SE cor. Section 23-1n-9w, and shut it down. The Magnolia Petroleum Co. was drilling at 215 feet in its No. 7 Harris, SE cor. NE NE, Section 25-1n-9w, and the Homa-Okla Oil Co. was repairing the rig on its old well, No. 1 Brymer, SE cor. Section 31-1n-8w, to drill deeper.

## REWARD FOR OIL UNCLAIMED

There was no particular feature that stands out in petroleum happenings in Australia and New Zealand during 1923. A number of companies have been organized for exploring and testing out supposedly petroliferous areas, but little has been accomplished by them beyond selling stock to the public. The Government's offer of £50,000 for the production in Australia of the first 100,000 gallons of petroleum is still unclaimed. The Commonwealth Oil Refineries (Ltd.), a joint interest of the Anglo-Persian Oil Co. and the Australian Government, has a large petroleum refinery under construction at Newport, a suburb of Melbourne. The present plans are to bring in Persian crude for refining until production in Australia or New Guinea is a reality.

## HALF BRITISH OUTPUT FORDS

Out of some 40,000 automobiles made in England in 1923, 24,000 were turned out by the Ford Company in Manchester. Of the 30,000 cars imported from abroad this past year one-half came from American owned companies in Canada and one-fourth were cars and chassis from the United States. France supplied 20 per cent and Italy the remaining 5 per cent. German cars have practically dropped out.

# REPUBLIC SUPPLY CO.

ASSURED ECONOMY THROUGH QUALITY

REPUBLIC IRON & STEEL CO.'S TUBING, CASING, LINE DRIVE AND LINE PIPE.

STANDARD SEAMLESS TUBE CO. SEAMLESS UPSET ROTARY DRILL PIPE.

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## OIL FIELD SUPPLIES AND COMPLETE FIELD EQUIPMENT

District Headquarters
**HOUSTON, TEXAS**
Corsicana, Texas
(Mildred)

District Headquarters
**SHREVEPORT, LA.**
Haynesville, La.
El Dorado, Ark.
Smackover, Ark.

District Headquarters
**WICHITA FALLS, TEXAS**
Graham, Texas
Breckenridge, Texas
Electra, Texas
Burkburnett, Texas
Wilson, Okla.
Duncan, Okla.
Wirt, Okla.

District Headquarters
**TULSA, OKLA.**
Tonkawa, Okla.
Henryetta, Okla.
Yale, Okla.
Shidler, Okla.
Pawhuska, Okla.
Haskell, Okla.
Beggs, Okla.
Slick, Okla.
Bristow, Okla.
Wewoka, Okla.

## ROTARY OR CABLE

# West Kentucky—Tennessee

By Vern T. Whitney

**Activity follows advances. Combest Oil Corporation gets 50 bbls. natural producer in Sulphur Creek district, Cumberland County. Ruby Consolidated Development Co. producer in Warren County estimated 30 bbls. C. E. Daugherty has 35 bbls. completion in Owensboro.**

BOWLING GREEN, Ky., Feb. 4.—Each of the past six weeks has brought good news for the producers in the Western Kentucky Field and the present week is no exception. An advance of 15 cents in the price of crude was posted Wednesday and the Indian Pipe Line Corp. announced that its new trunk line was completed and running oil from western Kentucky to the Indian Refinery at Lawrenceville, Ill. This line runs from Scottsville to Bowling Green, from Bowling Green to Owensboro and from there to Lawrenceville, Ill., a distance of approximately 167 miles.

The posted prices now are: Paragon Development Co., $2.15 for Warren and Allen County crude and $2.35 for Cumberland and Monroe County crude; the Indian Refining Co. is paying $2.21 for Western Kentucky light and $2.01 for Western Kentucky heavy.

The effect of the recent advances is reflected in the reports from the field of new wells spudded in and many new locations made. Sixteen rigs are moving to new locations, 5 in Barren, 3 each in Warren and Allen, 2 in Monroe and 1 each in Simpson, Cumberland and Ohio counties.

During the week 12 completions were reported, 6 producers with a flush of 146 bbls.; 5 dry holes and 1 gasser. Compared with last week's figures, this shows 3 more completions, 1 more producer, a gain of 113 bbls. in production, 1 more duster and 1 gas well.

The wells were distributed as follows:

| County— | Comp. | Wells | Prod. Prod. | Dry | Gas |
|---|---|---|---|---|---|
| Cumberland | 5 | 1 | 50 | 4 | 0 |
| Warren | 3 | 3 | 56 | 0 | 0 |
| Barren | 2 | 1 | 5 | 1 | 0 |
| Owensboro District. | 2 | 1 | 35 | 0 | 1 |
| Total | 12 | 6 | 146 | 5 | 1 |

### Cumberland County Wells

The Combest Oil Corp. scored a good success in its No. 5 on the A. Huddleston 210 acres, in the Sulphur Creek district of Cumberland County. It was completed in the sand below the Pencil Cave at 550 feet and is good for 50 bbls. naturally. On another portion of this same farm the Morris Petroleum Co.'s No. 3 is fishing for tools at around 540 feet. In this same district, Hook, Ross & Wise got a duster in their No. 2 Sam Riddle at 650 feet; W. S. Raydure's No. 2 Mrs. Coop is being drilled to the Trenton formation after both Sunnybrook sands were found barren. The Seaboard Oil Co.'s No. 2 C. Grace was declared dry after shot and will be plugged; the Combest Oil Corp. is fishing for tools in its No. 1 Groce, on lower Sulphur Creek; Douglas St. Clair's No. 1 Victoria King is drilling at 590 feet. The shale was found at 300 feet; the Kanawha Oil Co. was drilling at 200 feet in its No. 2 Williams, one-half mile down the branch of Sulphur Creek. The top of the Black shale was found at 70 feet.

### Bear Creek

The M. L. Spear No. 1 of the Paragon Development Co., offsetting the Sam Riddle No. 1 of E. M. Treat & Co., in the Bear Creek district, proved to be quite a disappointment, dry at 1,140 feet, 204 feet below the Pencil Cave. The pay that was found in the Treat well was entirely missing in the Spear test and it appears a crevice condition exists here with the oil feeding from some other pay. The Treat interests have made an inside location on the east side of the Dickens farm, to be started immediately.

The wildcat test on the Sarah Sheckles farm at Von Hollows, 1 mile east of the Treat well, was dry at 850 feet. Shale was found from 60 to 150 feet and the Pencil Cave from 720 to 722 feet. It is reported this test will be drilled 120 feet deeper in the near future. A location was staked off on the Ferris farm, east of the production on the F. F. Smith farm, by Bob Wise and associates.

The Combest Oil Corp. has spudded in on the Anderson lease at Galloway Creek in the southwestern part of the county. This is a very important test as it will prove a connection with the Judio Creek and Neeley's Ferry pools if a producer.

The Shady Side Oil Co.'s No. 1 C. Strange, at Big Renox Creek, is shut down at 700 feet; the Simpson test, near the limits of Burkesville, has resumed drilling at 510 feet.

McCormick and associates have sold 4,000 bbls. of crude oil to the Victory Refining Co. at Nashville, Tenn., 1,000 bbls. of which will be delivered at once to relieve storage conditions due to the inability of the producers to obtain pipe line connection to the Judio Creek Pool at present. Mr. McCormick expects to resume drilling in this section shortly.

### Kettle Creek

Activity in the Kettle Creek Pool is at a low ebb due to the severe weather and road conditions. The Gartlan Estate set casing at 250 feet in No. 4 Bud Kerr; the Daniel Boone Oil Co.'s No. 3 Logan is showing for a light well at 332 feet; Banta and others' No. 1 Logan was shut down at 250 feet; the Dayton Oil Co. is spudding No. 3 Jim Crawford, offset to No. 2 on the same farm, at 67 feet; Louisville Gas & Electric Co. is moving a rig to the Spear farm near Spears Store, on the ridge between Kettle and Sulphur creeks. The Young Oil Co.'s No. 2 J. R. Poindexter, W. S. Raydure's No. 1 Sam Smith, Lynch and others' No. 1 Barksdale, E. M. Ahlfeldt's No. 3 Turn Smith and Banta and associates' No. 1 Turn Smith were shut down.

In Clinton County, the Shipley Oil Co.'s No. 1 Doctor Ryan and A. J. Early's No. 1 Wallace were shut down.

### Warren County

The best well of the week in Warren County was the No. 3 Price Hall of the Ruby Consolidated Development Co. It was drilled 200 feet northwest of No. 1 Price and is estimated at 80 bbls. Shale was found from 1,010½ to 1,100 feet. Two sands were encountered, first from 1,110 to 1,115 feet and the second from 1,155 to 1,163 feet, the bottom of the hole. The sands were shot with 20 and 40 quarts, respectively. The well is in the new deep sand pool west of Rockfield. In the same district, C. L. Turner's No. 4 McLemore was shut down at 90 feet; Jackson Oil Co.'s No. 4 Jim Jones was shut down at 475 feet; Lowman's No. 5 Gillespie was drilling at 143 feet; Bolling & Loman's No. 3 Ben Price was on top of the sand; Wile's No. 2 G. Smith was progressing at 1,001 feet; Pennsylvania Oil Syndicate's No. 6 J. F. Young was down 712 feet and drilling; Peter Lavelle's No. 4 W. R. Hunton was still rigging; the Olive-Green Oil Co. is moving to No. 4 location on the McLemore farm to offset No. 2 Gillespie. In the shallow district, Roy Hogan's No. 1 poor farm was shut down at 200 feet; Hunt Oil Co.'s No. 13 Bettersworth was shut down at 212 feet.

### Waller-Runner District

In the northeast extension area, E. M. Treat & Co. finished its No. 18 Sebe Smith, offset to No. 10 W. A. Gott, for 25 bbls. flush at 1,017 feet. Shale was found from 826 to 906 feet, and the sand from 1,005 to 1,017 feet where it was treated to a 40-quart shot. This same company's No. 19 Smith is progressing at 900 feet while No. 20 is being rigged up to offset No. 18. The Wood River Oil Corp.'s No. 1 Rufus Oliver was shut down at 400 feet; the Ohio Fuel Oil Co.'s No. 3 Kelley-Miller was making hole at 867 feet; the Farmers Oil & Gas Co.'s No. 1 Bratcher was drilling at 310 feet; J. J. Fort has a rig on No. 2 location on the Anthony farm.

### Davenport Pool

The White Oak Fuel Co.'s No. 2 Perkins, 300 feet south of No. 1 is showing for a 6-bbl. pumper at 476 feet. The Interior Oil & Gas Co.'s No. 9 J. L. Jenkins is spudding; the Big Miami Oil & Gas Co. is moving a rig to drill No. 9 on the Johnson farm; M. Ennis and others' No. 3 Savage is spudding at 30 feet; Clark & Jones' No. 2 Hobson was shut down at 978 feet.

### Sandidge-Francis-Biddle

In the Sandidge Pool, Makeever Bros. are making hole at 350 feet on the No. 12 Anna Shields; the Foster interests of Dayton, Ohio, are on top of the pay in No. 5 Dr. C. E. Francis; the Foster interests of Florida were making progress at 246 feet in their No. 2 Wood; H. I. Mossbarger's wildcat on the Corhon farm, 3 miles west of the Sandidge Pool is getting ready to spud.

In Eastern Warren County, Williams & Co.'s No. 1 Hawthorne is shut down on top of the sand; Coupler & Sons' No. 2 Virginia Hill is being rigged up; the No. 1 Kirby at Smith's Grove was shut down.

In the Daviess-Hancock-Ohio County Field the past week, there have been two completions, one resulting in a good producer and the other being a gasser. On the Virgil Miller lease, in Ohio County, C. E. Daugherty finished his No. 3 for 35 bbls. This well is producing from both the Jett and Barlow sands, and was drilled to offset No. 4 Bob Miller.

The Wood Oil Co.'s No. 1 J. M. Reynolds at Reynolds Station, 4 miles in advance of production, is making 100,000 feet of gas in the Jackson sand at from 464 to 486 feet. Both the Jett sand, topped at 396 feet, and the Barlow sand, from 614 to 628 feet, were barren.

### Drilling Activities

P. T. Thurman's No. 1 Tom Ralph, a mile and a half south and west of the Hurricane Pool is cleaning out cavings at 528 feet. A showing was found in the Jett sand at 450 feet which will be given a shot if the Barlow and Jackson sands do not show to an advantage; the Newton Oil Co. staked off No. 2 location on the Lafe Payne farm; the Pellville Oil Corp.'s No. 1 Brown, north of Pellville, is trying to shut off water at 500 feet; White & Nicklin's No. 2 O. T. Burdett, east of the Bob Miller, is shut down at 686 feet; the Dearborne Oil Co.'s No. 1 Reardon, adjoining the Virgil Miller, was drilling at 350 feet; the Newton Oil Co.'s No. 1 Bickett, northeast of the Lafe Payne, is shut down in the Barlow sand; the Kentucky Oil Co.'s No. 1 Flowers, adjoining the Virgil Miller to the south, was drilling at 550 feet; C. A. Leeper has a rig over No. 8 A. Stewart and will commence drilling shortly; Leeper is also moving a rig to the J. W. Reardon farm to drill an offset to the Chambers well of the Kentucky Oil Co. Randolph & Stevens are rigging up to drill No. 2 on the C. Payne property. No. 1 drilled in three weeks ago is holding up nicely.

### Barren County Wells

The Elem Oil & Gas Co.'s No. 7 Warder, west of Glasgow, in Barren County was dry at 475 feet, 140 feet below the shale. No. 8 is rigging. On the Harston farm, on the Glasgow-Scottsville pike, L. J. Emery, Jr., & Sons finished No. 12 for 5 bbls. at 279 feet. No. 13 is spudding.

A number of rigs are moving to locations in Barren County and it is confidently expected that Glasgow will witness a small boom during the early spring or just as soon as road conditions are bettered.

No completions are reported in the Allen County Field during the week although several wells are on top of the sand awaiting shots. The producers in this county are jubilant over the recent advances in the market and will no doubt commence active work when the weather permits. The shallow drilling depth in Allen County will attract a great deal of attention at the present market as very good returns can be made on the production there at $2 oil.

## CRUDE BEING OFFERED MAY CHECK ADVANCE

OIL CITY, Pa., Feb. 4.—Crude oil is being offered by producers in this section now more plentifully than at any time within the past two months and some of the refiners state that they have been able to procure all that they desired for operating their plants. Some of the local refiners and jobbers believe that this will have a tendency to prevent the refined market in this section advancing to any material extent for a time at least. They point out that some of the refiners who have been refusing to sell 600 refined now are offering some for sale.

The fact that crude is again being offered by the producers and an improvement in the kerosene market were the only two features which are worthy of special mention at this time. The strengthening of the kerosene market has probably resulted from the tank wagon advances which were recently announced by the Standard Oil Co. of New Jersey.

There has been a good demand for gasoline during the week when the season of the year is considered and strength is shown at present in all refined products.

## OIL LAND UNDER HOMESTEAD

CASPER, Wyo., Feb. 4.—An interesting case regarding oil lands under homestead was recently tried in the Montana courts over a tract in the Sunburst Field. N. A. Apostle took up 160 acres in what is now the Sunburst Field, in 1916 and proved up his home claim and obtained title in 1921 although he could have proved the claim in 1919. Before proving title he ran a bill at a grocery store and the grocer brought suit and obtained judgment, then the court reversed the sale of the tract and ordered the deed from the sheriff's sale to be cancelled on the ground that the bill contracted was made before the homesteader was in possession of the land.

# The Bear Tractor

## 5000 Miles with Practically No Wear on Tracks

BEAR

THE section of track shown in the insert of illustration above is part of complete track on display at Chicago Road Show. It was repossessed by the Bear company for display purposes from one of the big oil companies in the southwest, being taken off tractor No. 10002 after more than 5000 miles of work. The pen knife blade, inserted as far as possible between track pin and link bearing, shows how imperceptible the wear has been. With a micrometer, it is measured in the merest thousandths.

The scarcely discernible wear shown on the track links is the only wear apparent after millions of contacts with the sprocket teeth. And as to how long a Bear track shoe will wear—no one knows. No Bear track shoe has ever worn out.

Bear is establishing new records of economy and owner satisfaction. A. V. Stombaugh, Farnam, Nebraska, says: "I have driven the Bear Tractor nearly 5000 miles. * * It is very easy to drive. * * Tractor is in fine condition. The repairs have been so small they are almost nothing to speak of. I have a daily record showing running the Bear 60 days on average of 26 gal. of gas and 3 qts. of cylinder oil per day at grading and maintaining."

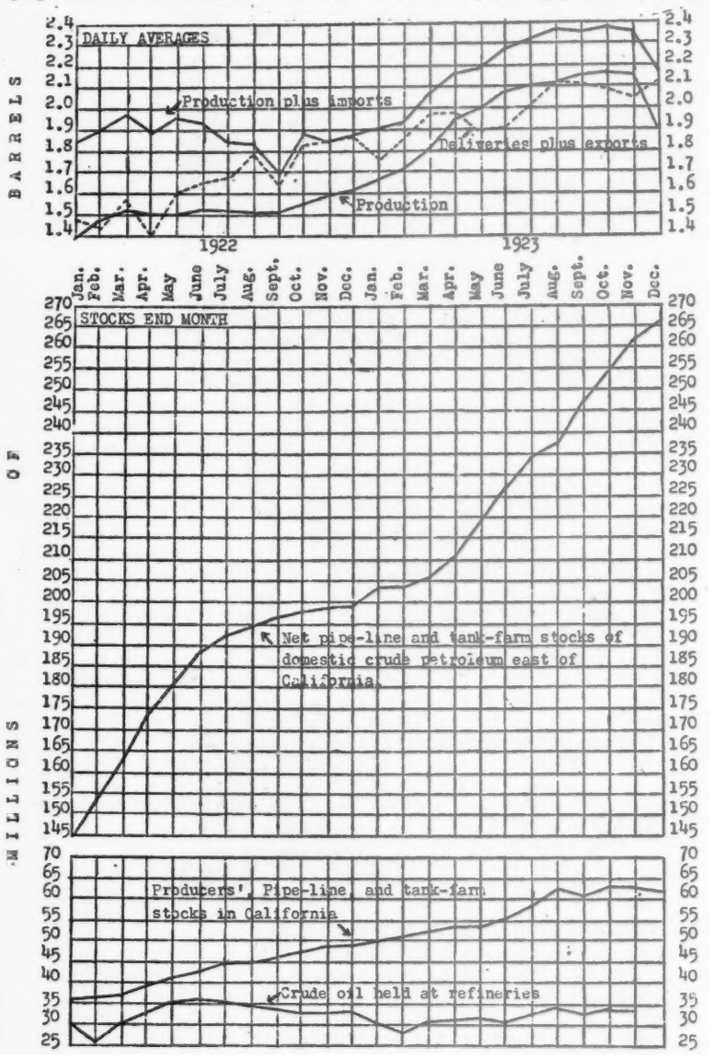
BEAR TRACTORS INC. 5323 PARK PLACE NEW YORK CITY

*The Tractor that Delivers its Power to the Drawbar*

# Crude Petroleum Statistics for the Year 1923

*(From the U. S. Geological Survey)*

(Including petroleum transported from producing properties; pipe line and tank farm stocks; imports; exports; and indicated deliveries to consumers. Final figures, based on the annual canvas of producers, will contain supplemental data —petroleum consumed for fuel on the leases and held in storage on producing properties. It is estimated that these items, added to the quantity of petroleum transported from producing properties (shown below), amounting to 725,702,000 bbls., will show a total gross production for the year of approximately 735,000,000 bbls.)


DAILY AVERAGES
BARRELS
Production plus imports
Deliveries plus exports
Production
1922
1923
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
STOCKS END MONTH
MILLIONS OF
Net pipe-line and tank-farm stocks of domestic crude petroleum east of California
Producers', Pipe-line and tank-farm stocks in California
Crude oil held at refineries

In 1923 all records were broken in the production of petroleum in the United States, 725,702,000 bbls. having been transported from producing properties. It is estimated that the annual canvass of producers will show that the total production for the year (obtained by adding to the quantity transported from producing properties the quantity consumed for fuel on the leases and the net increase during the year of stocks held on producing properties) was approximately 735,000,000 bbls. This is an increase of 30 per cent over the production of 1922, is more than double the production of the United States in 1918, and is almost 40,000,000 bbls. more than the entire world produced in 1920. In addition to this tremendous domestic output, imports of crude petroleum, although considerably less than in 1922, amounted to 82,000,000 bbls., and in spite of exports of 17,000,000 bbls. of crude oil and of unprecedented consumption (indicated deliveries to consumers were 710,000,000 bbls.), stocks of crude oil increased more than 79,000,000 bbls. At the end of the year pipe line and tank farm stocks amounted to more than 333,000,000 bbls., a quantity sufficient at the December rate of consumption for 163 days. Besides these stocks, some 10,000,000 bbls. of crude oil was held on producing properties, and on the last day of November 33,000,000 bbls. of crude oil was held at refineries.

The increased output was due to flush yield from a number of highly productive new fields in California, Arkansas, Texas, and Oklahoma, marking the culmination of the discovery during the last six years of more than a score of extraordinarily large pools, among which are the Elk Hills, Santa Fe Springs, Long Beach, and Huntington Beach, in California; West Columbia, Hull, Ranger, Burkburnett, Mexia and Powell in Texas; Hewitt, Beggs, Bristow, Burbank, and Tonkawa, in Oklahoma; Haynesville, and Homer, in Louisiana; Towanda, in Kansas; and El Dorado and Smackover, in Arkansas.

During 1923 daily average production steadily increased from 1,675,516 bbls. in January to a maximum of 2,160,967 bbls. in November. The new California pools attained their maximum in September, but the Powell Field, in Texas, which is estimated to have produced a maximum of 315,000 bbls. a day, maintained production on so high a level that the peak for the entire county was not reached until November. The output of these fields, however, declined sharply in December, when the daily average decreased to 1,899,742 bbls., or less than that of April, a drop in daily average yield of 161,225 bbls.

Imports of crude oil in 1923 were 45,000,000 bbls. less than in 1922. This marks the first large decrease since imports began, in 1909, and emphasizes the changed conditions in Mexico due to the falling off in the production of the Southern field, where so-called "light" oil having an average gravity of 20 degrees Baume is produced. In 1923 imports of light oil from Mexico constituted approximately 11 per cent of the total, as contrasted with 68 per cent in 1922.

Decreased production and imports of Mexican petroleum, coinciding with the increased production in California, resulted in the shipment through the Panama Canal to Atlantic and Gulf ports in the United States and almost 53,000,000 bbls. of California crude oil, having an average gravity of approximately 30 degrees Baume, and some 4,000,000 bbls. of California oil was shipped to Mexico. These shipments of California crude oil, amounting to more than one-fifth of the State's production, afforded an outlet for California's oversupply, which greatly relieved strained storage facilities. With decreased production in California, it is not to be expected that such large shipments will be continued. The sum of California's shipments to Atlantic and Gulf ports, plus imports in 1923 was only 8,000,000 bbls. more than the imports alone in 1922. If production continues to decline in the United States and Mexico, imports from other countries will probably increase. This movement was evident in 1923, when over 1,000,000 bbls. more of crude oil was imported from other countries than Mexico, chiefly from Peru, than was imported in 1922.

Consumption continues to expand and, as measured by indicated deliveries to consumers (a calculated item which includes losses), increased from 592,000,000 bbls. in 1922 to almost 711,000,000 bbls. in 1923, an increase of 20 per cent. For the first few months of the year indicated deliveries were greater than production, but later they did not keep pace with the increasing output and between April and November were less than production. The sharp reduction in production during December, however, reversed conditions, and deliveries to consumers were not only greater than production, but were almost equal to the sum of production plus imports.

Conditions of supply and demand for crude petroleum, contrasted with the price of Oklahoma-Kansas grade crude oil (between November 22, 1922, and September 19, 1923, ranging in gravity between 33 degrees and 34.9 degrees, and since September 19, 1923, between 33 degrees and 39.9 degrees) for the years of 1919 and 1923 are shown in the following diagram:

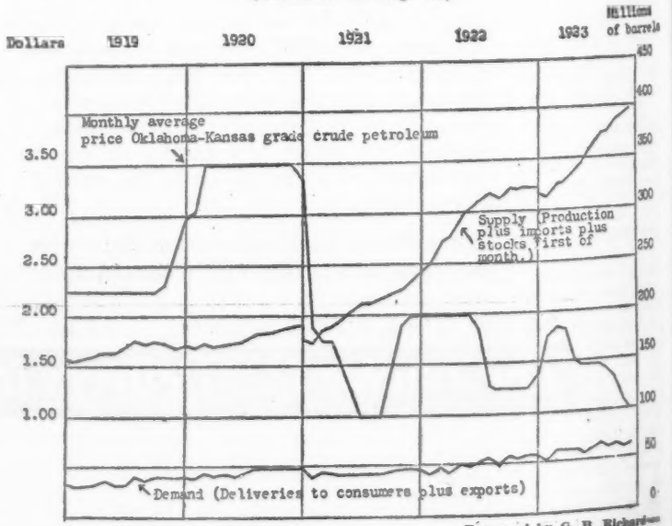
Prices of crude oil in 1923, reflecting the conditions of oversupply, trended downward. Toward the end of 1922 and during the first few months of 1923, prices of Mid-Continent oil, for example, in apparent accord with the slackening rate of increased supply, advanced, and in March the monthy average price of petroleum of gravity between 33 degrees and 34.9 degrees was $1.89 a barrel, as contrasted with $1.25 in December, 1922. But the increasing supply forced prices down, and on November 8 the price of Mid-Continent oil between 33 degrees and 39.9 degrees had declined to $1 a barrel, the low level reached during the period of deflation in 1921. However, on January 9, 1924, after the marked December decline in production and apparently in anticipation of a decreasing supply, the price of Mid-Continent oil between 33 degrees and 39.9 degrees was increased to $1.25 a barrel. During December there were three advances in Pennsylvania grade crude oil, from $2.50 to $3.25 a barrel.

The year 1924 opens with a distinct change in general conditions in the petroleum industry. Production, which for so long has continued to increase, has been sharply checked and consumption apparently will soon be greater than the new supply, so that it will be necessary to draw upon stocks. The peak of production in the United States may have been reached in 1923, and concern with regard to the condition of oversupply may before long give way to anxiety as to a source of petroleum adequate to meet the ever-growing demands.

## PRODUCTION

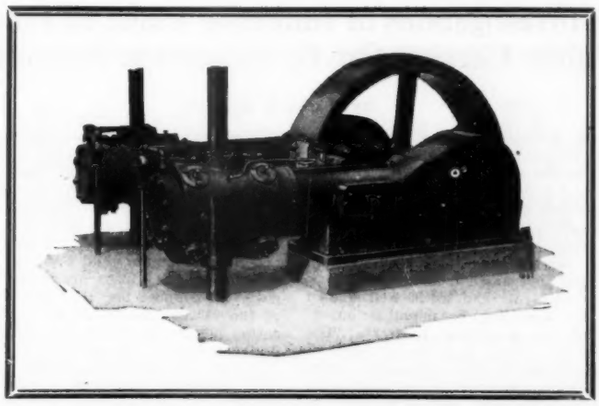
The figures for 1923 given below for the States east of California, compiled from reports made to the Geological Survey by companies that operate gathering lines, are preliminary and show the quantity of petroleum transported from producing properties. Petroleum consumed on the leases and produced but not transported from the producing properties is not included in the preliminary figures. These items are given in the final annual statistics, which show all the oil brought to the surface. The figures for California for 1923 are those reported by the Pacific Coast office of the American Petroleum Institute and are preliminary. Final figures for California are those compiled by the California State Mining Bureau. Figures for 1923 are subject to re-

(Continued on Page 84)




Prepared by G. B. Richardson

**Supply and demand of crude petroleum by months and monthly average price of Oklahoma-Kansas grade crude oil, 1919-1923**



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C-124

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# Oil Laboratory Work By the Government

## Scientific Investigations of Immense Value to Industry and to the Public Carried On By Experts in Federal Bureaus

By Charles E. Kern

WASHINGTON, D. C., Feb. 4.—During the year 1923 scores of scientific investigations looking to the solving of problems of interest to the petroleum industry have been made by the Government in laboratories here and scattered all over the country. It is difficult for the public to realize and fully appreciate the value of this work because many of the subjects investigated appear to be remotely connected with any immediate financial result. However, it is probable that the country receives a greater return upon its expenditures for such investigations than from any other money appropriated from the National Treasury.

In this work the United States Bureau of Mines, the Bureau of Standards and the Geological Survey have all been busy. Their activities have been as extensive as the country itself.

Among the strikingly interesting studies that have been carried on has been one by the Bureau of Standards to discover how it may be possible to obtain as much fuel oil suitable for internal combustion engines as possible from a barrel of crude petroleum. While cracking processes have been developed for increasing the highly volatile products from petroleum and while that work is still being pursued by the Bureau of Mines, the Bureau of Standards started in at the other end of this campaign for increasing fuel oil for internal combustion engines by endeavoring to learn how much lower grade product may be left in the gasoline and still answer the requirements of the automobile. So far as this work has gone the Bureau has satisfied itself that no more volatile product than that now provided in the Government specifications is necessary and they have a pretty good idea that more of the kerosene may be left in the gasoline with entire satisfaction to the consumer.

### Increasing Recovery

Just how much money may be wrapped up in these experiments can be seen if one considers what it means to add even a quart or more of the content of the barrel of crude oil to the gasoline output with an annual production in this country alone of more than 500,000,000 barrels of crude. The difference between the price of the output sold as illuminating oil and sold as a satisfactory grade of fuel oil for internal combustion engines would amount to a small fortune. Both producer and consumer would be served. Perhaps the year 1924 may determine how much of the heavier oil may be thrown into the motor fuel with satisfactory results. These experiments will attract more attention as crude oil increases in price.

The problem in respect to increasing the amount of motor fuel known to the trade as gasoline to be obtained from a barrel of crude oil is expressed in another way by scientists who are making these investigations. As they put it, they are striving to get the maximum number of miles of transportation per barrel of crude and in carrying out that purpose they are serving the public as well as the oil industry. The more they can utilize for that purpose from the barrel of crude the better it will be be, whether to produce a greater quantity of highly volatile fluid or to make a lower volatile fluid do the work. Either way it means millions of dollars to saving the industry and to the consumer.

During the past year the Federal specifications for the Government for the purchase of fuel petroleum have been studied and revised, these specifications being used not only by the Government in making its purchases but also by State and municipal governments, as well as many private concerns, and as is well known they are assuming considerable importance in the petroleum industry. The Bureau of Mines and the Bureau of Standards are joined in doing this work. These specifications are so made up as to strive to define what will be suitable oil for various purposes. By simplifying and so reducing the number of separate specifications that may be required to answer all the needs of the industry the refiner is greatly assisted, and that runs into money values, not easy to define, but very real. In connection with the specifications has been work on the method of testing for oxidation of the motor oil. The present Government specifications do not provide for motor oils sufficiently good to insure satisfaction in all cases and it is believed the inclusion of an oxidation test in these specifications will insure a better product. At present there is no oxidation test and it will not be included until the specifications committee feels the test to be prescribed is what it should be.

Another line of study is being given by the Bureau of Standards to what is known as the pour test, showing how oil flows at low temperatures. It may be that the present pour test does not indicate the relative ease with which oil flows in engine oil pumps.

Viscosity is another subject that is being given great attention. The cash value of lubricating oil at this time is in almost direct proportion to its viscosity. An oil of high viscosity brings a higher price than oil of lower viscosity and that leads to the discussion in respect to the correctness of this viscosity measurement.

Work has been going on for the formulation of density tables on A. P. I. gravity basis rather than on the Baume basis.

The Bureau of Standards has been attempting to obtain information on the performance of motor oils in service, both by the dynamometer test in the laboratory and actual road test on vehicles in actual service. They are trying to discover a method for the determination of the relative values of different lubricating oils by a service test. These are designed to show the good and bad points of lubricating oils in actual use.

### Working With the Industry

The petroleum division of the United States Bureau of Mines has had a vast number of problems before it during the last year. The work of this bureau is divided between research work on petroleum and allied subjects and spuervisory work of oil and gas leases on Government land. The field work on petroleum is developed chiefly through field offices and stations conveniently situated with respect to the oil fields and the refineries and close contact between the work of the bureau and the industry is maintained. In this way the problems that were given attention last year were representative of the needs of the industry.

The pollution of navigable waters by oil was one of the problems undertaken by the bureau at the request of the Secretary of State, the object being to ascertain the important sources of oil pollution, to determine what methods and means are available or may reasonably be applied for its elimination and to report on the technical features involved.

Investigation has been pursued to determine the physical changes brought about in lubricating oil by filtration through Fuller's earth and these data have been assembled and tabulated. Research work has been carried on on the dehydration of oils and bibliography on that subject has been prepared. Some work has been done on the melting point and solubility of paraffin waxes. There has been a study of methods in producing oil in the Salt Creek Field with reference to the conservation of natural gas, and a bulletin has been prepared upon the protection of oil and gas field equipment against corrosion.

### Studying Crudes

The Bartlesville station has received considerable increase in its facilities during the past year and new stills have been erected there for a special study of American crudes. A vast number of investigations were conducted at the experiment stations among which were the following: Development problems in the Tonkawa oil field; Development problems in the Chickasha gas field; water problems in the Cushing oil field; well repair work in Oklahoma; study of oil well shooting; experiments on steaming oil sands; study of methods of handling oil wells; study of mud fluid and cement for oil and gas field use; diamond drilling and its application in the oil industry; manufacture of gasoline from crude oil; fuel conservation in refineries; study of evaporation losses; educational campaign for conservation of gas; determination of leakage losses in natural gas transmission systems; crude oil survey; separation of oil field emulsions; study of wax and lubricating oil from Oklahoma crudes; development of procedure for testing natural gas for its gasoline content from Government land; treatment of natural gas gasoilne to meet the doctor test; study of refining properties of selected crudes.

A bulletin showing the various methods in use for pumping wells together with cost data was prepared showing among other things various oil recovery facilities.

A part of the work of the bureau of vast interest to the California oil fields were tests made of Pacific Coast products with relation to Standard petroleum specifications. California petroleum is known to differ in characteristics from the crude oil products produced in other parts of the United States and the claim has been made that the present Federal specifications are unduly severe when applied to products made from California crude. The purpose of the survey was to determine whether or not these claims were justified. With some exceptions the products mostly come within the specifications. A report published by the bureau gives full information on the properties of the gasolines, lubricating oils and burning oils of California.

### Cracking Heavy Oils

Experimental work with the Bowie-Gavin cracking apparatus to develop a process for cracking tars and heavy oils was completed and a bulletin covering the work done has been prepared. An apparatus for burning out the carbon produced in operating this system was designed and constructed and successfully operated. The Bureau thinks it probable that this process will be satisfactory for refinery use in cracking heavy residual products if the inert material could be revitalized and used as many times as desired.

The bibliography of petroleum and allied subjects has been brought up to date and mimeograph installments of this work are being mailed to interested persons.

Dynamometer tests of California oil in respect to acidity and emulsion tests, never before carried on by the bureau, were made.

The salvaging of old oil material was a subject of a special study with a view to the repair and utilization of old casing, sucker rods, drilling and fishing tools.

(Continued on Page 90)

## NEW DIRECTORS PETROLEUM EXPOSITION

W. M. Welch

Frank J. Hinderliter

*Two new directors were selected recently by the International Petroleum Exposition and Congress, they being W. M. Welch, vice president of the Tidal Refining Co., and Frank J. Hinderliter, president, Hinderliter Tool Co.*

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# MEN KNOWN IN OILDOM

**Max Waite Ball**

Max Waite Ball, president of the American Association of Petroleum Geologists, and of the Marine Oil Company, was born in Munson Township, Henry County, Illinois, September 9, 1885. His father died in 1893 and he went to Colorado with his mother and sister in 1896.

He was with the United States Geological Survey from August, 1906, to March, 1916, being chairman of the Oil Board from December, 1910, until his resignation. His work for the survey was usually in the coal and oil fields of the West. From March, 1916, until May, 1917, he was with the United States Bureau of Mines as mining engineer and law officer, specializing on oil matters. He resigned in June, 1917, to become chief geologist for the Royal Dutch-Shell oil interests in the Rocky Mountain region. In April, 1918, Mr. Ball became manager of their interests, and when the Matador Petroleum Company was founded in 1920 to take over all Royal Dutch-Shell operations in the Rocky Mountain region he was made general manager. In May, 1921, he resigned to organize and become president of the Western Pipe Line Company and the Ute Petroleum Company, and in December, 1922, he became president of the Marine-Glenrock-Royalty and Producers group of oil companies.

# PERSONAL PARAGRAPHS

Dr. Joseph B. Umpleby, who recently resigned as head of the department of geology in the University of Oklahoma, has assumed the general management of the Middle West of the Goldellin Oil Corporation, of which he is vice president and with which he has been associated since its organization several years ago.

• • •

T. C. Towl, John Darr, R. L. Cronise, J. S. O'Brien, H. C. Roess, W. D. O'Day, K. C. Simmons, and E. G. Wright attended the annual meeting of the Southwest Pennsylvania Pipe Line Company officials and directors held at Oil City, Pa., recenty. The following day, the annual meeting of the Eureka Pipe Line Company was held at the same place. J. J. Kenny, general superintendent, of Pittsburgh, Pa., Ernest Macklin, assistant superintendent, of Parkersburg, and J. C. McCarl, of Mannington, were among those who attended the meeting. J. A. Geiger, J. H. Gardner and Patrick Leonard, all officials of the Cumberland Pipe Line Company, of Winchester, Ky., were also in attendance.

• • •

John L. Weeks, of New York, vice president of the Maracaibo Oil Exploration Company, has gone to Cuba for a vacation.

• • •

E. R. Shepard, one of the best known pipe line officials in the country, is seriously ill at his home in Oil City, Pa.

• • •

Guy M. Buchner, of Holdenville, Okla., who is credited with being responsible for the discovery of oil in the Holdenville-Wewoka district, left recently for a trip to Havana and the Panama Canal, following a brief sojourn at Palm Beach, Fla., accompanied by his wife and son.

• • •

C. E. Miller, vice president of the James B. Berry's Sons Company, of Chicago, has gone to California on a combined business and pleasure trip.

• • •

H. C. Mulroy, traffic manager of the Marland Refining Company, of Ponca City, Okla., made a week's business trip to Galveston, Texas, recently and while in Texas attended a banquet of the Houston Traffic Club.

• • •

H. S. Michael, of Canon City, Colo., has gone to Trinidad to superintend the construction of a filling station for the Derby Oil Company. Another station will be built at Raton, N. M., by this company.

• • •

S. C. Collins, vice president of the Marland Refining Co., Ponca City, Okla., stopped in Chicago last week on his way home from the Marland meeting in New York.

• • •

E. J. Bullock, director of purchases for the Standard Oil Company of Indiana, has returned to Chicago from a hurried business trip to Tulsa.

• • •

George N. Moore, president of the Moore Refining Company, Chicago, has been visiting the company's refinery, at Arkansas City, Kans.

• • •

Homer Johnson, president, and G. B. Williams, sales manager of the Johnson Oil Refining Company, Chicago, visited the company's Detroit office during the past week.

• • •

L. V. Nicholas, president of the National Petroleum Marketers Association, has consented to address the Western Petroleum Refiners' Association at the Dallas meeting next March.

• • •

The Chicago offices of James B. Berry's Sons Co. has been informed that J. D. Berry, president of the company, is rapidly recovering from a recent operation in Cleveland. He expects to spend his period of convalescence in Florida.

• • •

J. J. Treft has resigned as plant superintendent of the Globe Refining Company at Blackwell, Okla., and will engage in business on his own account. Mr. Treft entered service of the Globe nearly seven years ago, going to Blackwell from Okmulgee, where he helped to build the Waite Phillips refinery.

• • •

Dr. S. H. Diggs, manager of the wax and candle department of the Standard Oil Company of Indiana, made an interesting talk to the Casper Chamber of Commerce recently on the subject of candles as made from petroleum.

• • •

M. J. Bowers, former pipe line engineer for the Producers & Refiners Corporation, in Wyoming, was a Casper, Wyo., visitor over the week-end recently. Mr. Bowers is now located in Denver, but expects to come back to the Wyoming fields as soon as the weather moderates. Mr. Bowers formerly was a pipe line worker in the Eastern fields and worked there with the Illinois Pipe Line Company and the Buckeye.

• • •

G. A. R. Slocum, sales manager of the Skelly Oil Company, El Dorado, Kans., spent several days last week at the Tulsa offices of the company.

C. H. Beecher, deputy supervisor of the Bureau of Mines at the Casper, Wyo., office, has resigned from that position and will enter the field force of the Empire Gas & Fuel Company.

• • •

Frank L. Ketch, Ardmore oil operator and formerly administrator of the Jake L. Hamon estate, headed a group of oil men that recently made a tour of southwestern Texas. They visited Webb County and the fields of the Laredo district.

• • •

Henry Patterson, William Lambert and Archie Currie of Petrolia, Ont., have left for the Venezuela fields, where they will spend three years. Mrs. Andrew Wolsey is returning to Petrolia from Maracaibo, Venezuela.

• • •

Frank Buttram, president of the Buttram Petroleum Corporation of Oklahoma City, is to leave early in February for a tour of Palestine, some countries of Africa and several European countries. He is to combine business and pleasure and expects to visit several oil-producing regions. He will be absent for several months.

• • •

R. C. Burroughs has been transferred from Great Bend to Larned, Kans., to take charge of the Derby Oil Company's new station at that place. J. F. Thomas has been appointed agent at the new station at Las Animas, Colo., and D. W. Owens will be the resident manager of the new station which the company is building at Lawrence, Kans.

• • •

Kork Kelley, of Dallas, Tex., formerly manager of the gasoline department of The Texas Company, and one of the best known gasoline experts in the Mid-Continent, was in Tulsa last week on business connected with his recently acquired patent. He was accompanied by his wife. Mr. Kelley managed the first plant built by The Texas Company and also the first one owned by the Sinclair Oil & Gas Company. His brother, Carl Kelley, succeeded him as manager of The Texas Company's gasoline department.

• • •

W. G. Hanrahan, of the Vacuum Oil Company, Cisco, Tex., made a trip through northern Oklahoma last week in the interest of his company, and reported business exceptionally lively in that area.

• • •

Thomas Rider, president, and E. DeGoyler, vice president of the Amerada Petroleum Corporation, of New York City, visited the Tulsa offices of the company recently, looking over the company's property in Oklahoma and inspecting the new gasoline plant at Tonkawa.

• • •

Ola Goodson, of Blackwell, Okla., was re-elected president of the Blackwell Oil & Gas Company at the annual meeting of the company held last week. N. D. Kistler was elected vice president, A. W. Brooks, secretary, and J. W. Randall, treasurer.

• • •

Lewis S. Coryell, geologist and engineer, formerly connected with the Phillips Petroleum Company for several years, has opened an office in Bristow, Okla.

• • •

W. H. Geis has returned to Casper, Wyo., from an extended trip through the California fields, where he made a recommendation for the location of a test in the Sacramento Valley.

• • •

A. A. Buschow, secretary-treasurer of The Bridgeport Machine Company, of Wichita, Kans., was in Tulsa during the past week. He is making a careful survey of conditions affecting the petroleum industry with a view of determining the needs and outlook for this year.

• • •

J. Edgar Pew of Dallas, Tex., vice president and Western manager of The Sun Oil Company, Philadelphia headquarters, arrived in Los Angeles, recently to enjoy a short vacation and, incidentally, to look over the California oil situation. Tankers built by the Sun Shipbuilding Corporation, Philadelphia, visit Los Angeles Harbor frequently, some owned by the company and transporting crude oil to the Sun refinery at Marcus Hook, Pa.

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349

# NATURAL GAS DEVELOPMENTS

## Increased Market Develops for Gas In the Southwest

Three big factors in industrial fuel consumption operated throughout the United States during 1923 in more or less degree and these have marked their trail along the industrial avenues of the Southwest, according to William A. Moorhead in "Natural Gas."

These factors were the coal strike, low prices of crude oil and the increasing knowledge of the superior value of available natural gas for industrial purposes. The result was mitigation against coal and an increased market for oil and natural gas.

Texas leads the Southwest with approximately 1,086 industrial users; Oklahoma is second with 706, Arkansas third with 306, and Louisiana with 189. These figures are based upon official returns.

Big users not included in the above are the carbon black interests of Texas and Louisiana. Estimates place a large consumption per month in Texas and Louisiana in making carbon black.

On the distributing lines of the Lone Star gas system in 61 Texas communities approximately 50 per cent of all industries are supplied with natural gas; electricity and oil serve the remaining plants.

Some of the varied uses of gas in Texas are: baking, boiler heating, candy making, cotton gins and mills, flour mills, generating electricity, heating, gas engine power, japaning, oil refining, paper mills, water works and zinc manufacture. Oil stills and possibly other stills are also supplied.

On the basis of October compilations, California led the United States in use of natural gas for generating electricity, Oklahoma was second, Ohio third and Texas came in for fourth place.

California uses 25 per cent natural gas for this purpose, Oklahoma 62 per cent, Texas 39 per cent, Arkansas 42 per cent, Kansas 27 per cent and Louisiana 23 per cent. Other fuels used were oil and coal with the single exception of California, in which State oil and natural gas only were used.

A general average of 36 per cent throughout the Southwest for this use and an estimated higher percentage for manufacture usages—material gains over other years—graphically depicts the importance of natural gas in the Southwest industrial field.

Classification of industrial gas users into five divisions went into effect December 1 over the Lone Star Gas system in Texas. This step was taken to relieve the peak load demands and to protect consumers according to their industrial position.

### ONTARIO GAS RATE

CHATHAM, Ont., Feb. 2.—The Natural Gas Board of Reference for Ontario recently gave its decision in relation to the natural gas rates in Chatham Township, where the original franchise was granted to the United Fuel Supply Co. for a pipe line to supply Dresden and Sarnia. The board held that the original franchise was a "transmission" franchise, and as a result the rate originally specified must hold good. The Union Natural Gas Co., now operating the line, had applied for a decision as to the nature of the franchise and for a rate to be set.

The board held a sitting at Chatham on January 24 to deal with an application of the Union Natural Gas Co. for rates in Windsor and the adjacent border municipalities, Wallaceburg, Dresden and Ridgetown, which are now operating under a tentative 50-cent rate. The hearing was adjourned for one week owing to the illness of G. H. Kilmer, K. C., counsel for the Municipal Gas Consumers' Association.

## TAX ON NATURAL GAS WEST VIRGINIA PLAN

Reaction to the recent decision of the United States Supreme Court, which again has held unconstitutional the Steptoe act passed to restrict the exportation of natural gas from West Virginia, is indicated by an editorial in the Wheeling Intelligencer, which says in part:

"This decision, it must be assumed, ends all efforts on the part of West Virginia to secure the preferential use of her own natural wealth for the benefit of her own citizens.

"Under the circumstances, if the State is to obtain any just compensation for the development and exploitation of this enormously valuable resource, it must do so through taxation instead of regulation.

"At the recent meeting of the State Manufacturers' Association, a tax program, particularly applicable to the gas situation, was overwhelmingly endorsed by that body. This program suggests a 6 per cent tax on the value of natural gas at the mouth of the well. It suggests, moreover, a special license tax upon pumping stations and pipe lines, graduated to the ratio of the capacity of the pumping station, and the capacity of the pipe lines, and the pressure at which they operate.

"These two taxes, the Intelligencer believes, will stand all constitutional tests.

"Certainly the right to tax the production of a natural wealth within a State cannot be questioned.

"So far as West Virginia is concerned, the natural gas situation grows yearly more acute.

"This business (of exporting natural gas) can be made to return a revenue to the State of West Virginia, more than enough to take care of the fifty million dollar road bond issue, and the upkeep of all the roads which that bond issue will create.

"To the very degree that the piping of gas out of the State is made costly and unprofitable, to that degree will it be retained in West Virginia. A wise program of taxation will yet return to our citizenship enormous benefits, benefits which may last through another generation.

"For years we have wasted great opportunities foolishly. Let us waste them no longer."

## CARBON BLACK PLANT FOR SARNIA, ONTARIO

CHATHAM, Ont., Feb. 2.—Sarnia Oil & Gas Co. of Sarnia, Ont., is reported to be constructing a plant in Sarnia Township for the manufacture of carbon black. The initial plant will consist of six burning houses and an engine room and block house, and is equippel to produce 1,400 pounds a day of carbon black. The company has developed a small gas production from 10 shallow wells in this township, and additional drilling will likely be done to maintain the necessary production.

The same company is interested in a product to utilize the wet gas production of the Many Island Lake Field, northeast of Medicine Hat; and arrangements have been made with the Medicine Hat Development Co. and Community Oils, Ltd., to utilize wet gas production developed in wells drilled for oil. As a result of these arrangements, a gasoline plant with a daily capacity of 5,000 gallons and a carbon black plant of 1,000 barrels daily capacity will be constructed.

## OPERATIONS FOR GAS NEAR CHERRYVALE, KANS.

CHERRYVALE, Kans., Feb. 2.—Oil and gas activity here is picking up. Barney Finley has drilled in a good well 2 miles north of town on the W. E. Walsher farm, making nearly 2,000,000 feet of gas daily. Veeder & Shumaker have drilled in a small gas well in the Oswego lime on the Liebert farm, north of town.

John Finley has a rig on the Hackley farm, northeast of town, and is down in the second break of lime 1,600 feet. M. C. H. Drilling Co. expects to drill in a well on the Hutter farm, north of town, at once.

Claude Finley has a contract to drill a well on the Sullivan Lomax property in town. Sixteen other gas wells already are drilled in the city limits. Singleton & Littrell of Independence completed a gas well on the Whitestine farm and have a fishing job on the Billings farm, 5 miles south of town.

## GOOD WILL IMPORTANT

H. L. Montgomery

Mr. Montgomery, manager of the Gas Division of the Empire Companies, in a recent address to members of the Empire New Business Department, stressed the value of public good will building and the importance of this work as relating to the selling of the three part rate to the public. He expressed himself as well pleased with the existing attitude of the public towards the company.

### SMELTER BURNS GAS

BLACKWELL, Okla., Feb. 4.—The Retort Gas Co., which is furnishing residue gas to the Bartlesville smelter at Blackwell, has completed its five unit booster station from Tonkawa to Blackwell and is delivering 4,000,000 feet of gas a day to the plant. The gas leaves the station carrying 75 pounds pressure and arrives at the smelter 10 miles away carrying 50 pounds. All of the residue gas from the Gypsy Oil Co. and American Petroleum Corp. gasoline plants are handled by the Retort Gas Co.

### GAS SERVICE FOR WEWOKA

WEWOKA, Okla., Feb. 4.—Practically all of the business portion of Wewoka has been piped for gas, and most of the business establishments are being furnished heat by the Wewoka Gas Co. On account of the bad weather the piping has been slow.

## GAS RATE DECISION BASED ON VALUATION

NEW YORK, Feb. 4.—Report and findings of Special Master Graham in the New York & Queens Gas Co. case, in which he found the $1 gas law unconstitutional, is one of the most important findings yet made in New York gas rate litigation.

Mr. Graham holds that original property cost is not the limit of valuation on which the company has the right to earn a return but that it is entitled to a rate which will give it a return of at least 8 per cent on the present reproduction cost of the property.

In this respect he is following the decision of the United States Supreme Court in the Southwest Bell Telephone case in which the court held that the value of the property should be taken as of the current cost of production, at the time the investigation for rate purposes is made, and not on the original cost of the property.

In holding that the legislature can fix a 650 b. t. u. standard of gas, Mr. Graham finds that such a standard would increase gas costs by 4 cents per 1,000 feet, compared with the present standard.

People familiar with the situation estimate that if the master's findings of reproduction cost is upheld, New York & Queens would have to get at least $1.60 a thousand feet for gas to earn an 8 per cent on reproduction cost of the property. Its present rate, under injunction, is $1.38. This rate was arrived at in order to give the same revenue as the old rate of $1.15 and a 75 cents a month service charge, when the legislature passed a law prohibiting service charges.

## NATURAL GAS MEN FORM TWO-STATE ASSOCIATION

BARTLESVILLE, Okla., Feb. 4.—R. B. Newbern of this city, has been selected as the head for the organization formed by the natural gas producers of Kansas and Oklahoma. The organization will promote friendly relations between the producers and the various pipe line companies and to assist the producers in working out new methods of protecting properties and supplies. Mr. Newbern has lived in Bartlesville during the past eight years, during which time he was connected with the Empire companies as a member of the gas production department. He later was superintendent of that department.

He was selected as the organizer at a meeting of a committee of the gas producers.

In addition to his work with the Empire companies, Mr. Newbern was connected with the Macon Gas Light and Water Co., of Macon, Ga., for a number of years, and learned much about artificial gas and its distribution.

### OPPOSE RATE INCREASE

HOLDENVILLE, Okla., Feb. 4.—Mayor J. D. Rives has announced that the city officials will oppose the application of the Hughes County Pipe Line Co., made to the Corporation Commission, for an increase in gas rates from 10 cents to 25 cents delivered at the city gate. The case has been set for hearing before the commission on February 12. In a recent statement, Mayor Rives said that the city officials have considered the drilling of wells for gas on 400 acres of municipally owned land in what is thought to be gas producing territory. The abundance of gas in this territory is held by the officials to be a sufficient argument against an increase in rates.

# The "Great Spirit" of the Mid-continent Oil Fields

## The Prophet Sought by the Oil Industry for Advice on Credits

Years ago; when Oklahoma, the Great Mid-Continent Oil Fields of today, was virgin soil; tradition has it that the great spirit breathed a propheey of untold riches for the Red-Man.

Today the prophecy is fulfilled beyond the dreams of the wildest imagination. Vast stretches of territory embracing half a dozen States is dotted with clumps of derricks where the drill has touched. Railroads; pipe lines; highways; refineries; tank farms; supply houses have followed in the wake of oil. An industry with millions invested; more millions derived; more millions constantly in action through the interchange of business in the world of oil.

And today, in the Oil Industry the "Great Spirit" is still present. It is the spirit of a great bank—a bank breathing the very spirit of oil—all knowing, all seeing—a source of guidance and help to those who MUST know whose credit is good and to those who wish the goodness of their credit to be broadcast to the world.

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## EXCHANGE BANKS OF TULSA

The Exchange National Bank — Exchange Trust Company

*Combined Resources Exceed Forty Million Dollars—*

# THE WELL BLEW IN—

## They lost the derrick and nearly Pipe remained to tell the story-

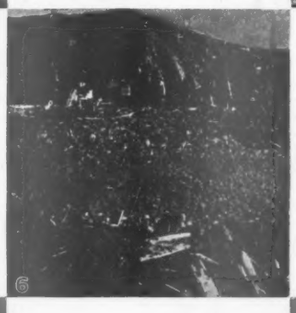
Another story from the Drilling Field—another demonstration of the particularly good qualities of "NATIONAL" Pipe; as reported in 12 chapters.

*Alexander No. 1 Well*
*Santa Fe Springs Field*
*California*
*Jan. 5, 1922*

*Chapter I*
"View of crater two days after the well blew in. The entire equipment, including the derrick, was lost in the hole."

*Chapter II*
"Looking directly into the crater. The whole mass resembled a heaving lake of lava, the movement throwing considerable mud into the air."

*Chapter V*
"View of crater showing the mass of oily mud during one of its receding or sinking movements."



*Chapter VI*
"Another view of the crater looking towards the engine house. Note the two mud sills. These sills were later submerged."

*Chapter IX*
"The man in the picture is standing on a twisted mass of the "NATIONAL" Drill Pipe. The boiler stacks help to give an idea of the distance the pipe was thrown."

*Chapter X*
"A twisted mass of pipe. The most remarkable feature of the whole thing being the fact that the 700 feet of "NATIONAL" Drill Pipe thrown from the hole, remained in one length."

# THE PIPE BLEW OUT

## the whole works - but part of the It was "NATIONAL"

As a continuation of this unusual story and example of drill pipe dependability, ask for "NATIONAL" Bulletin No. 15—"NATIONAL" PIPE FOR DRILLING PURPOSES.

**NATIONAL TUBE COMPANY, PITTSBURGH, PA.**

*District Sales Offices in The Larger Cities*

*Chapter III*
"The mass seemed to whirl around and around, forming a cone shaped depression which moved to different parts of the lake."

*Chapter IV*
"The eruptions were of different volume and intensity. It was observed that they were directly controlled, and worked with the rise and fall of ocean tides."

*Chapter VII*
"At the time the well blew in they were coming out of the hole, and 700 ft. of "NATIONAL" 6-inch Drill Pipe was thrown into the field. The bit end of the pipe laid the farthest from the crater, being some 150 yards."

*Chapter VIII*
"Looking from the fields towards the crater. Note the drill pipe lying in one continuous length like a snake among the cabbage plants."

*Chapter XI*
"Looking from the field towards the crater. This shows the terrific twisting the pipe withstood without any sign of failure in wall or weld."

*Chapter XII*
"Showing the bit end of the pipe, the bit sunken in the ground. Seven hundred feet of pipe was thrown from the hole, suspended for a moment in the air and heaved into the field, bit first."

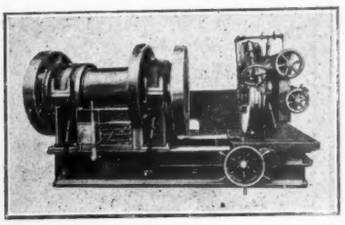
# EQUIPMENT AND SUPPLIES

## New Pipe Threading Machine Is Placed on Market by Landis Co.

A new pipe threading and cutting machine with a range from 10 inches to 20 inches covered by one die and one set of chasers has just been put on the market by the Landis Machine Co. of Waynesboro, Pa.

The machine has a single pulley drive, and the variations in speeds, which are eight in number, are obtained by means of a speed box located beneath the main spindle. A friction clutch is mounted on the main drive shaft with the pulley, or, if driven by electric motor, a chain sprocket will be substituted for the pulley. The operating cone of the clutch is moved by two levers which are located at the ends of the head stock within easy reach of the operator.

All gears are fully enclosed and with the exception of the main driving gear and its pinion they run in an oil bath. The main bearings of the hollow spindle are lubricated with flat link chains which run in oil contained in large reservoirs



in the base. The driving pinion shaft as well as the reverse shafts are lubricated by sight feed oilers.

At each end of the hollow spindle there is a three-jawed independent chuck for holding the pipe. The rear chuck is equipped with flange grips for fitting flanges.

The carriage which supports the die head, the cutting off tool, and the reaming tool are moved either by power or by hand. The power traverse or movement is both forward and backward and is controlled by a lever located on the operating side of the carriage. In advancing the carriage toward the chuck, the lever is pulled and held until the threading position for the die is reached. In reversing the movement of the carriage, the lever is pushed forward and held. Releasing the lever stops the carriage at any point within its travel. Automatic stops prevent the die head from coming in contact with the chuck in the forward movement and the carriage from running off the guides of the machine in the backward movement. The reaming tool is quickly set to position and locked with a lever.

The length of the machine is 12 feet 2 inches and the height is 6 feet. Extreme width over the belt pulley is 5 feet 10 inches, while if it is motor driven the extreme width over the motor plate is 6 feet 8 inches. The machine weighs 22,000 pounds.

### OPENS NEW OFFICES

Two new offices have been opened by the Standard Turbine Corp., of Scio, N. Y., manufacturers of steam turbines, according to an announcement recently made. In San Francisco, the new representatives of the company will be Halloran & Golcher, a firm long established and with a broad experience in turbine sales and engineering. In Omaha, Neb., the new representatives of the company will be the Industrial Sales & Engineering Co.

## PIPE LINE MACHINES ARE BEING EMPLOYED

The Oklahoma Pipe Line Co., which is completing its new line from Ardmore to De Queen, Ark., reports much satisfaction during the work through the use of the California Pipe Line Co. machines. The Oklahoma company has been operating three machines which it owns and four additional machines which it leased for this job. The machines can lay 6, 8 or 10-inch pipe. Eight-inch is being used at present.

Records for the machines report they will lay an average of 8,900 feet or 445 joints of 8-inch pipe, average length 20 feet, during an 8-hour working day. Twenty-five men are used. Crews using hand tongs average one-half mile of pipe laid during the same time, and 50 men are found necessary.

The machine consists of a gasoline engine similar to that used in light automobiles, mounted on a frame, consisting of a piece of casing about 6 feet long, which passes over the pipe line as the line is constructed; a clutch, similar to an automobile clutch, operates a train of gearing, conveying the power from the engine to the bull wheel, which is mounted on the front end of the casing. The front tongs are attached to the bull wheel. The back-up tongs are placed in the frame back of the bull wheel.

In operation, the machine is moved to such a position that the collar between the pipe line and the pipe to be screwed up is between the two tongs. The pipe to be screwed up is stabbed into this collar and hung on the crane. The tongs are then closed and the machine rotates or screws the pipe into place. While this is being done, the pipe line is supported back of the machine by a device adapted for that purpose and on the front end, by a wooden plug which is supported by a wooden horse.

The legs supporting the machine are then withdrawn by the engine, and the weight of the machine is placed on the pipe line. It travels upon the pipe line on traction wheels, with power from the engine. As soon as the machine has traveled to the end of the line, so that the front tongs are just beyond the collar of the pipe, the legs are extended downward, and the machine and the pipe line are raised off the supports, the wooden plug is withdrawn, another pipe put in place and the operation repeated.

### ALL-STEEL DRILLING EQUIPMENT

The Parkersburg Rig & Reel Co. announces that it now manufacturers complete all-steel drilling equipment, including steel derricks, steel drilling rigs, steel bull wheels, calf wheels, band wheels, etc.

## OIL COUNTRY GOODS PRICES FIRM; RECORD TUBING AND CASING YEAR

By B. E. V. Luty

PITTSBURGH, Feb. 4.—Production of steel ingots has been increasing at a rapid rate since the end of December. For seven months, from about May 1 to the end of the year, there had been progressive decrease, totaling about 28 per cent, and now in one month more than half the lost ground has been recovered.

A small part of the increase in steel ingot production is not matched by corresponding increase in finished steel production, for the United States Steel Corp. is accumulating ingots and semi-finished steel in order to have an ample supply for finishing operations in the second quarter of the year. On the whole, however, the increase in finished steel production is almost as large as the increase in crude steel.

Several influences have contributed to produce the condition. In the first place some business was held back by buyers late in the old year, on account of the January 1 inventory, and such business has since come along. In the second place, there is a normal and natural disposition to replenish stocks for spring activity, this being true of manufacturing consumers and of jobbers alike.

Finally, as perhaps the most important influence, there is now full confidence among buyers as to the maintenance of mill prices for steel products, for a reasonable period ahead at least. While there had been no serious doubt as to maintenance of prices on such lines as rails, merchant pipe, oil country tubular goods and wire products, there was considerable doubt during the late months of the old year as to bars shapes, plates and sheets. The mills have held their ground so well that the doubt is removed, seeing that with an increasing operation they have no incentive or temptation to make price concessions.

This very stability in prices, however, does not positively insure that steel prices will hold indefinitely, for it causes buyers to replenish stocks, whereby production of steel is probably considerably ahead of actual ultimate consumption at the present time. If general business conditions should become less favorable later on, and buyers should start liquidating stocks the demand upon mills would be correspondingly reduced and prices on some steel lines might be subject to pressure.

Demand upon the pipe mills has continued to increase at a strong pace. Jobbers in the oil fields are increasing their orders right along, to build up stocks for spring distribution. Operating oil companies are also buying freely. Jobbers all over the country are buying merchant pipe and replenishing stocks, which have been low for many months.

While the steel mills as a whole are running at about 80 per cent of capacity the pipe mills are running substantially full. Deliveries of oil country goods are by no means easily obtained, for in some sizes deliveries have to be scheduled. The pipe mills themselves are unable to accumulate any stocks although they would like to do so.

The pipe mills now regard it as entirely settled that this year's consumption of tubing and casing will be the greatest on record. As to line pipe there is no definite indication as yet. Not a few small orders are coming in, but no big projects have been coming to a head.

The Standard Oil Co., New York, is in the market for oil storage tanks involving about 4,500 tons of plates, and there is a Standard Oil inquiry for tanks at Baton Rouge, La., involving 500 tons of plates. The Warren City Tank & Boiler Works has received orders from the Sun Oil Co. for two large and six small tanks for erection at Providence, R. I., involving close to 1,000 tons of plates. The Vacuum Oil Co. has ordered an 80,000-barrel tank for Texas City.

The tin plate mills are now operating almost at capacity and are making heavy deliveries to the oil trade on contracts placed late in the old year while there are heavier deliveries than usual at this season to the makers of packers' cans.

## ALL STEEL DRILLING MACHINE ANNOUNCED

The oil industry is showing considerable interest in the recent announcement of the Armstrong Manufacturing Co., Waterloo, Iowa. which has started the manufacture and distribution of an all-steel oil well drilling machine. Power is furnished by a four-cylinder, four-cycle gasoline engine. The frame, often called the backbone of the machine, is made of steel channel beams and angles, trussed and every piece hot riveted in place. No screws, bolts, nuts or washers are used, giving great rigidity and security.

The band wheel is mounted inside the frame, between two main sills, and is supported on two heavy bearings. Power control is flexible and instantaneous and a reversing transmission allows the operator to reverse the band wheel or any shaft on the machine at will. The calf wheel works independently and is always ready for service. It will pull 6,000 pounds of casing on a single line.

Specifications on No. 50, a walking beam machine for 1,000-foot drilling with patent wire line derrick using steel cable exclusively are as follows: Equipped with 22½ h. p. four-cylinder, heavy duty gasoline engine. Carries 2,200 pounds of tools. Bull reel capacity, 1,500 feet ¾-inch steel drilling cable. Sand reel capacity, 1,500 feet ⅝-inch sand line. Forty-two foot steel derrick, will carry load of 35,000 pounds without extra guy lines or bearers. Tools can be hoisted at average rate of 250 feet per minute. Bailer can be hoisted from bottom of hole, 1,000 feet in 1 minute.

Additional specifications follow: Length over all without derrick, 22 feet. Weight of derrick complete with crown pulley and sand line sheave, 2,400 pounds. Weight of complete machine, without tools or cable, 17,500 pounds.

## GRAVITY OIL BURNER OF NEW TYPE COMING

A new type of gravity oil burner for oil field use has been invented by Kork Kelley of Dallas, Tex., and will soon be put on the market. It is simple in construction, and operation, requiring no pumps. It uses about as much water as oil, the principle upon which it operates being the formation a hydrogen gas which requires but a little oil to diffuse it. One advantage of this burner is that it does not require the driller to get up steam in order to start it, as a piece of oily waste is all that is required to start the generation of the hydrogen gas.

For the present, the inventor is confining his attention to the oil field burner although he expects to apply the same principle to a burner for domestic use a little later.

### NEW DETROIT OFFICE

A new branch office has been opened in Detroit, Mich., by the Permutit Co. of New York City, specialists in water rectification and general sanitation, with Benjamin Soffe in charge. Mr. Soffe is a well known engineer on water conditioning problems and has been with the company in the Michigan territory for the past five years. The Permutit Co. is the originator of Zeolite water softening in the United States.

### COMPANY REINCORPORATED

The B. & C. Machine & Foundry Co., Tulsa, has reincorporated under the name of the Cunningham Co., an Oklahoma corporation composed of the same officers and directors as the old concern.

# Like unto a wise man which buildeth his house upon a rock

Biblical days are not the only ones that have seen well built establishments crumble before adversity simply for want of a firm foundation.

Permanence and continued prosperity can be built only upon a foundation of top quality goods from a source which gives absolute assurance of the same high quality throughout the year.

**PENN AMERICAN**
***dependable Pennsylvania products***

are aimed to carry the burden of your sales job after the trial order. Their unvarying uniformity makes a customer list permanent.

With these superfine products of straight Pennsylvania grade repeat business comes in at minimum sales expense and frees your salesmen for finding further profitable customers.

PENN AMERICAN REFINING COMPANY
*Refiners of Pennsylvania Petroleum*
*Home Office:* Oil City, Pa.
*Refineries:* Oil City and Rouseville, Pa.
*Established 1886*

# Tips from an Old-Timer

Top quality merchandise makes a heavy sample case lighter to carry.

## Eastern Producers Actively Endorsing Pa. Grade Campaign

PARKERSBURG, W. Va., Feb. 4.—One hundred and fifty oil operators from Wood, Roane, Calhoun, Pleasant, Wirt and nearby counties gathered at Parkersburg to consider affiliation with the Pennsylvania Grade Crude Oil Association, elected Gilbert L. Watson chairman of their district and recommended him as a member of the directorate of the association.

Producers attending practically all announced their intention of affiliating with the organization.

Addresses were made by John P. Herrick of Olean, N. Y.; R. J. Alexander, secretary of the association, and John P. Flynn of Sistersville, vice president.

Several local operators and business men connected with allied industries were present, among them being John M. Crawford, president of the Parkersburg Rig & Reel Co., who stated that his concern will be glad to contribute to the association and that he believed other manufacturers will take his view on the subject.

MARIETTA, Ohio, Feb. 4.—Over 300 oil men from southeastern Ohio and West Virginia attended the organization meeting of the local branch of the Pennsylvania Grade Crude Oil Association, referred to by R. J. Alexander, of Oil City, secretary of the association, as the largest and most enthusiastic he has attended in the tri-State district.

The principal speakers were John P. Herrick of Olean, N. Y.; R. J. Alexander, secretary, and J. P. Flynn, of Sistersville, vice president of the association. Plans for a great Pennsylvania crude oil advertising campaign were greeted with enthusiasm.

LOGAN, Ohio, Feb. 4.—The oil producers of this section have elected H. D. Atha of Mannington, W. Va., to serve as a director on the board of the Pennsylvania Grade Crude Oil Association as a representative of this section of the Pennsylvania producing fields. Mr. Atha is vice president and general manager of the Gordon Oil Co., which has extensive production in the Logan district.

### UNION TANK P. & R. CARS

NEW YORK, Feb. 4.—The Union Tank Car Co. may acquire the tank cars of the Producers & Refiners Corp. and enter into a service contract with the latter company, according to reports circulated in the oil trade. The Producers & Refiners Corp. has about 700 tank cars in its transportation service. The interests which now control the Producers & Refiners Corp. are said to favor the plan of leasing cars to such an organization as the Union Tank Car Co. on the ground that it will prove more economical.

### BECOMES A. P. I. STATISTICIAN

Lacy Walker, treasurer of the American Petroleum Institute, is to take over the statistical department of the institute, formerly in charge of L. M. Fanning, who resigned February 1 to join the staff of The Oil and Gas Journal in New York.

### WYOMING PETROLEUM CLUB

CASPER, Wyo., Feb. 4.—At the meeting of the Wyoming Petroleum Club, Geologist John Bartram of the Midwest Refining Co., stressed the need of accurate well logs in this region as of great value in the work of finding new fields and in the elimination of losses by the drilling of dry holes. Mr. Bartram was formerly with the Roxana Petroleum Corp. as geologist in the Mid-Continent and Rocky Mountain fields. Dr. J. G. Diggs of the wax department of the Standard of Indiana followed with a talk on the wax industry and the manufacture of candles from parafine oils. M. E. Bozeman of the Perkins Cementing Co., spoke of the work of cementing wells.

## Sinclair Pipe Line From Wyoming Ready For First Shipment

CASPER, Wyo., Feb. 2.—The Sinclair pipe line that will connect Salt Creek and central Wyoming with the trunk lines that cross the continent from the Mid-Continent fields is about ready for the first shipment of oil. The connection with the Mid-Continent lines was made at Fremont, Mo.

This big trunk line is the first pipe line to cross the borders of Wyoming. It commences at Teapot, the south end of the Salt Creek Field and consists of two 12-inch lines to Clayton, about 27 miles southward; then at Clayton the line strikes the parallel railroads of the Burlington and the Chicago and Northwestern and at this point the Sinclair Pipe Line Co. established a tank farm so that deliveries can be made from this point via tank car shipment. This is one of the largest tank farms in the country and also is a point of storage when needed.

From there the line runs southeast to the Wyoming State line as two 8-inch pipes with 10-inch loops and then down across Nebraska to the junction point with the Mid-Continent lines.

With this line in operation, Salt Creek oil can be delivered by pipe line to any Eastern refinery point or to any Mid-Continent refinery center. It would be a relatively small matter to connect this line to the Illinois pipe line at the Big Muddy Field or to connect at Salt Creek with the Producers & Refiners' pipe line that now carries oil to Parco and by these connections link up all the central Wyoming oil fields, including the Lost Soldier, so that crude could be sent east or south from any point here. There is little possibility of this being downe now, but the time may come when the Eastern refiners may want Wyoming crude badly enough to warrant such connections. The Big Muddy Field connection would only require about 3 miles of pipe laying to reach the Clayton tank farm.

There are 17 pumping stations along the line and the work on these plants is about completed. The line from Salt Creek to the tank farm at Clayton has been in operation for more than a year and the royalty oil that the Sinclair obtained at the sale held by the Government has been stored at Clayton. The line is expected to be ready for operation by March 1 and divisions are now undergoing tests. F.B.T.

## ARMSTRONG COUNTY, PA., REPORTS 100-BBL. WELL

OIL CITY, Pa., Feb. 1.—The Scrubgrass Oil & Gas Co. has a fine oil well in Armstrong County, about 11 miles from New Bethlehem. The well was completed at 2,727 feet in the Tiona sand and filled up 750 feet in the tubing, although it had only been drilled two feet into the sand. Harry M. Feely of this city, who was the drilling contractor, states that the well looks to be good for a 100-bbl. natural producer.

### SUPPLIES FOR GROZNY FIELD

A report from Grozny, Russia, says: The acute stage in shortage of pumps and pipes supply is now over; a hundred pumps and complete sets of pipes and electro-motors have been received, and these are now being installed.

## NEW OSAGE SALE WILL OCCUPY 2 DAYS

(Continued from Page 21)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 347 | SE | 19-29-12 | 404 | SE | 17-28-11 | 461 | SW | 8-26-10 | 538 | NW | 36-27- 9 |
| 348 | SE | 29-29-12 | 405 | SW | 17-28-11 | 462 | SE | 11-26-10 | 539 | NE | 9-28- 9 |
| 349 | SW | 29-29-12 | 406 | NE | 21-28-11 | 463 | NE | 21-26-10 | 540 | NW | 9-28- 9 |
| 350 | NE | 32-29-12 | 407 | SE | 21-28-11 | 464 | NW | 21-26-10 | 541 | SE | 13-28- 9 |
| 351 | NW | 32-29-12 | 408 | SE | 23-28-11 | 465 | SW | 21-26-10 | 542 | SW | 14-28- 9 |
| 352 | SE | 32-29-12 | 409 | SW | 23-28-11 | 466 | SE | 35-26-10 | 543 | NW | 18-28- 9 |
| 353 | SW | 32-29-12 | 410 | NE | 25-28-11 | 467 | SW | 35-26-10 | 544 | NE | 19-28- 9 |
| 354 | SW | 7-20-11 | 411 | NW | 25-28-11 | 468 | NW | 5-28-10 | 545 | SE | 19-28- 9 |
| 355 | SW | 29-20-11 | 412 | SE | 25-28-11 | 469 | SW | 5-28-10 | 546 | NE | 24-28- 9 |
| 356 | NE | 30-20-11 | 413 | SW | 25-28-11 | 470 | NE | 17-28-10 | 547 | SE | 24-28- 9 |
| 357 | SE | 14-21-11 | 414 | NE | 31-28-11 | 471 | NW | 17-28-10 | 548 | SW | 24-28- 9 |
| 358 | SW | 14-21-11 | 415 | SE | 31-28-11 | 472 | NE | 23-28-10 | 549 | NW | 13-29- 9 |
| 359 | SE | 19-21-11 | 416 | NE | 32-28-11 | 473 | SE | 23-28-10 | 550 | SW | 13-29- 9 |
| 360 | NE | 29-21-11 | 417 | NW | 32-28-11 | 474 | SE | 29-28-10 | 551 | SE | 23-29- 9 |
| 361 | SE | 29-21-11 | 418 | NW | 24-29-11 | 475 | SE | 33-28-10 | 552 | SW | 33-29- 9 |
| 362 | SW | 29-21-11 | 419 | SE | 24-29-11 | 476 | SE | 13-29-10 | 553 | SE | 36-29- 9 |
| 363 | NE | 7-22-11 | 420 | SW | 24-29-11 | 477 | SE | 15-29-10 | 554 | SW | 36-29- 9 |
| 364 | SW | 13-22-11 | 421 | NW | 28-29-11 | 478 | SW | 15-29-10 | 555 | SW | 6-22- 8 |
| 365 | NE | 22-22-11 | 422 | SW | 28-29-11 | 479 | NW | 22-29-10 | 556 | SW | 11-22- 8 |
| 366 | NE | 10-25-11 | 423 | NW | 31-29-11 | 480 | SW | 22-29-10 | 557 | SW | 21-22- 8 |
| 367 | NW | 10-25-11 | 424 | SW | 31-29-11 | 481 | SE | 30 29-10 | 558 | NW | 29-22- 9 |
| 368 | SE | 14-26-11 | 425 | NW | 34-29-11 | 482 | SW | 30-29-10 | 559 | SW | 29-22- 8 |
| 369 | SW | 14-26-11 | 426 | SW | 34-29-11 | 483 | SE | 1-21- 9 | 560 | SW | 20-23- 8 |
| 370 | NE | 23-26-11 | 427 | NE | 6-20-10 | 484 | NE | 3-21- 9 | 561 | NE | 2-24- 8 |
| 371 | NW | 23-26-11 | 428 | NW | 6-20-10 | 485 | NW | 3-21- 9 | 562 | NW | 2-24- 8 |
| 372 | SE | 23-26-11 | 429 | SE | 6-20-10 | 486 | SE | 6-21- 9 | 563 | SE | 9-24- 8 |
| 373 | NW | 25-26-11 | 430 | SW | 6-20-10 | 487 | SW | 6-21- 9 | 564 | NE | 17-24- 8 |
| 374 | SE | 25-26-11 | 431* | NE | 7-20-10 | 488 | NW | 23-21- 9 | 565 | SE | 18-24- 8 |
| 375 | SW | 25-26-11 | 432* | NW | 7-20-10 | 489 | SW | 23-21- 9 | 566 | NE | 19-24- 8 |
| 376 | NW | 35-26-11 | 433* | NE | 16-20-10 | 490 | NW | 24-21- 9 | 567 | NW | 8-25- 8 |
| 377 | NW | 36-26-11 | 434* | NW | 16-20-10 | 491 | SW | 24-21- 9 | 568 | NE | 13-25- 8 |
| 378 | NE | 2-27-11 | 435* | SE | 16-20-10 | 492 | NE | 9-22- 9 | 569 | SW | 19-25- 8 |
| 379 | NW | 2-27-11 | 436 | SE | 9-21-10 | 493 | SW | 9-22- 9 | 570 | SW | 25-25- 8 |
| 380 | SE | 2-27-11 | 437 | NW | 21-21-10 | 494 | NE | 11-22- 9 | 571 | SE | 26-25- 8 |
| 381 | SW | 2-27-11 | 438 | SW | 22-21-10 | 495 | SE | 11-22- 9 | 572 | SE | 29-25- 8 |
| 382 | NE | 6-27-11 | 439 | SE | 24-21-10 | 496 | SE | 11-22- 9 | 573 | NE | 32-25- 8 |
| 383 | SE | 6-27-11 | 440 | SE | 32-21-10 | 497 | SE | 33-22- 9 | 574 | NE | 5-26- 8 |
| 384 | NE | 10-27-11 | 441 | NE | 20-22-10 | 498 | SW | 34-22- 9 | 575 | SW | 7-26- 8 |
| 385 | SE | 10-27-11 | 442 | SE | 20-22-10 | 499 | Not Shown | | 576 | SE | 8-26- 8 |
| 386 | NW | 11-27-11 | 443 | NW | 1-23-10 | 500 | NE | 1-23- 9 | 577 | SW | 10-26- 8 |
| 387 | SW | 11-27-11 | 444 | SE | 1-23-10 | 501 | SE | 1-23- 9 | 578 | NW | 15-26- 8 |
| 388 | NW | 15-27-11 | 445 | SW | 4-23-10 | 502 | NW | 18-23- 9 | 579 | NE | 17-26- 8 |
| 389 | SE | 15-27-11 | 446 | SE | 10-23-10 | 503 | SE | 18-23- 9 | 580 | NW | 18-26- 8 |
| 390 | SW | 15-27-11 | 447 | SW | 10-23-10 | 504 | SE | 31-23- 9 | 581 | SE | 21-26- 8 |
| 391 | NW | 20-27-11 | 448 | NE | 34-24-10 | 505 | NE | 33-23- 9 | 582 | SE | 26-26- 8 |
| 392 | SW | 20-27-11 | 449 | SW | 3-25-10 | 506 | SW | 33-23- 9 | 583 | SW | 28-26- 8 |
| 393 | NE | 29-27-11 | 450 | NE | 4-25-10 | 507 | NW | 4-24- 9 | 584 | NE | 32-26- 8 |
| 394 | NW | 29-27-11 | 451 | NW | 4-25-10 | 508 | SW | 4-24- 9 | 585 | NE | 33-26- 8 |
| 395 | NE | 3-28-11 | 452 | SE | 4-25-10 | 509 | NE | 6-24- 9 | 586 | SW | 35-26- 8 |
| 396 | NW | 3-28-11 | 453 | NE | 15-25-10 | 510 | NW | 6-24- 9 | 587 | SE | 36-26- 8 |
| 397 | SE | 3-28-11 | 454 | NW | 15-25-10 | 511 | SE | 16-24- 9 | 588 | NW | 6-27- 8 |
| 398 | SW | 3-28-11 | 455 | SE | 15-25-10 | 512 | SW | 16-24- 9 | 589 | SW | 6-27- 8 |
| 399 | NE | 9-28-11 | 456 | SE | 23-25-10 | 513 | NE | 2-25- 9 | 590 | SE | 8-27- 8 |
| 400 | NW | 9-28-11 | 457 | SW | 22-25-10 | 514 | SW | 5-25- 9 | 591 | NW | 11-27- 8 |
| 401 | NW | 12-28-11 | 458 | SW | 23-25-10 | 515 | NW | 18-25- 9 | 592 | SW | 11-27- 8 |
| 402 | NE | 17-28-11 | 459 | NW | 8-26-10 | 516 | SW | 18-25- 9 | 593 | SE | 16-27- 8 |
| 403 | NW | 17-28-11 | 460 | SE | 8-26-10 | 517 | SE | 30-25- 9 | 594 | SW | 16-27- 8 |
| | | | | | | 518 | NW | 5-26- 9 | 595 | NE | 2-28- 8 |
| | | | | | | 519 | SW | 5-26- 9 | 596 | SW | 2-28- 8 |
| | | | | | | 520 | NE | 6-26- 9 | 597 | NE | 5-28- 8 |
| | | | | | | 521 | SE | 23-26- 9 | 598 | SE | 5-28- 8 |
| | | | | | | 522 | SW | 23-26- 9 | 599 | SW | 11-28- 8 |
| | | | | | | 523 | SE | 24-26- 9 | 600 | SW | 16-28- 8 |
| | | | | | | 524 | SW | 24-26- 9 | 601 | NE | 20-28- 8 |
| | | | | | | 525 | SE | 36-26- 9 | 602 | SE | 20-28- 8 |
| | | | | | | 526 | NE | 2-27- 9 | 603 | NW | 34-28- 8 |
| | | | | | | 527 | NE | 3-27- 9 | 604 | SE | 34-28- 8 |
| | | | | | | 528 | SE | 7-27- 9 | 605 | SW | 34-28- 8 |
| | | | | | | 529 | SW | 7-27- 9 | 606 | SE | 13-29- 8 |
| | | | | | | 530 | SE | 16-27- 9 | 607 | NW | 15-29- 8 |
| | | | | | | 531 | SW | 16-27- 9 | 608 | NE | 16-29- 8 |
| | | | | | | 532 | SW | 20-27- 9 | 609 | SE | 19-29- 8 |
| | | | | | | 533 | NE | 22-27- 9 | 610 | NW | 20-29- 8 |
| | | | | | | 534 | NE | 25-27- 9 | 611 | NE | 27-29- 8 |
| | | | | | | 535 | NW | 25-27- 9 | 612 | NW | 27-29- 8 |
| | | | | | | 536 | SE | 31-27- 9 | 613 | NE | 30-29- 8 |
| | | | | | | 527 | NE | 3-27- 9 | 614 | NW | 30-29- 8 |

**To Be Sold March 19, 1924, Schedule B.**

| | | | West Side | | | | | | East Side | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 615 | SE | 2-22- 7 | | | | 625 | SW | 11-27- 5 | | | |
| 616 | SW | 6-26- 7 | | | | 626 | NW | 14-27- 5 | | | |
| 617 | SE | 16-28- 7 | | | | 627 | NW | 26-27- 5 | | | |
| 618 | SW | 16-28- 7 | | | | 628 | SW | 26-27- 5 | | | |
| 619 | NW | 21-28- 7 | | | | 629 | NW | 35-27- 5 | | | |
| 620 | SE | 1-26- 6 | | | | 630 | NE | 9-25- 4 | | | |
| 621 | SW | 17-27- 6 | | | | 631 | NW | 9-25- 4 | | | |
| 622 | NW | 20-27- 6 | | | | 632 | SE | 9-25- 4 | | | |
| 623 | SE | 20-27- 6 | | | | 633 | SW | 9-25- 4 | | | |
| 624 | SE | 3-27- 5 | | | | | | | | | |

Tracts marked with an asterisk (*) are fractional tracts (less than 160 acres) as follows:

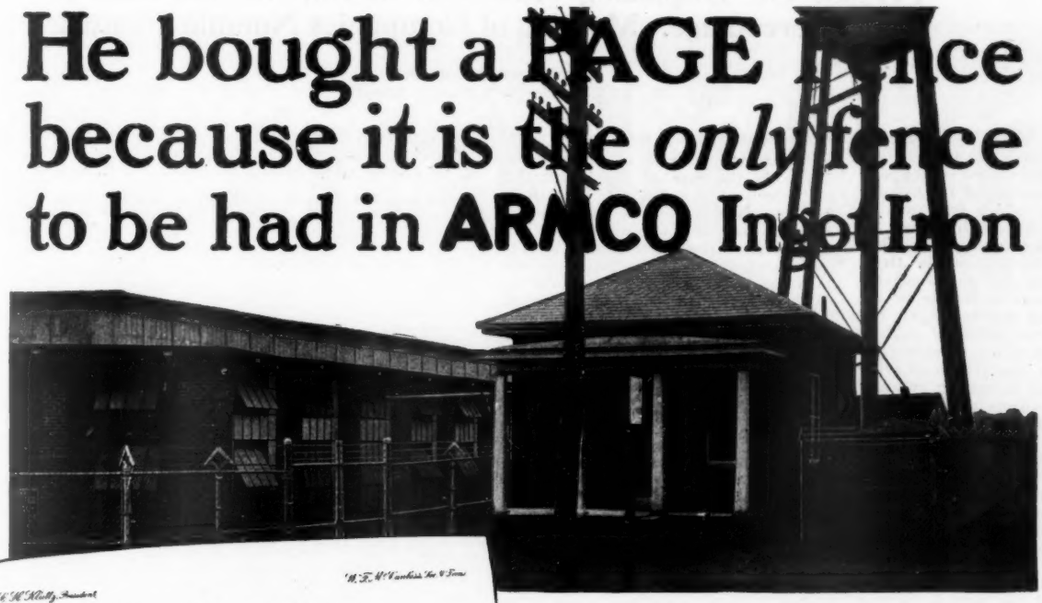
| Tr. No. | Acres | Tr. No. | Acres |
|---|---|---|---|
| 11 | 148.56 | 332 | 133.18 |
| 17 | 132.60 | 338 | 133.30 |
| 27 | 131.36 | 339 | 133.14 |
| 28 | 130.26 | 431 | 63.50 |
| 29 | 23.75 | 432 | 58.95 |
| 30 | 25.00 | 433 | 154.30 |
| 117 | 159.50 | 434 | 8.00 |
| 118 | 86.20 | 435 | 140.40 |
| 326 | 133.32 | | |

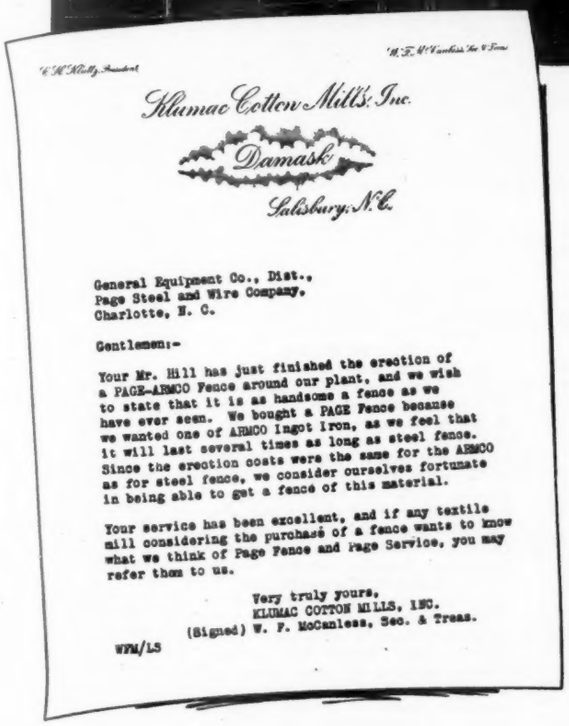
### IMPORTS OF PETROLEUM PRODUCTS DECEMBER AND TWELVE MONTHS ENDING DECEMBER 1922 AND 1923

| | December, 1922 | | December, 1923 | | Twelve Months Ending December, 1922 | | Twelve Months Ending December, 1923 | |
|---|---|---|---|---|---|---|---|---|
| | Gallons | Value | Gallons | Value | Gallons | Value | Gallons | Value |
| Total mineral oil | 367,697,359 | 5,679,499 | 427,666,029 | 8,917,592 | 5,709,786,857 | 88,186,711 | 4,183,537,252 | 78,154,090 |
| Crude petroleum | 300,976,822 | 4,172,874 | 353,525,839 | 5,973,841 | 5,346,963,774 | 70,383,309 | 3,444,631,182 | 53,882,278 |
| Refined petroleum products, lubricating, illuminating and fuel oils, tops and other unfinished products | | | | | *115,405,578 | *7,547,058 | | |
| Topped, including fuel oils | 56,444,540 | 702,734 | 41,308,202 | 810,841 | †123,778,279 | †1,656,788 | 513,502,937 | 7,526,360 |
| Tops and other unfin. distillates | 6,136,200 | 448,063 | 8,148,330 | 256,912 | †59,561,711 | †2,776,209 | 32,988,174 | 1,690,259 |
| Gasoline, naphthas and other finished products | 4,122,150 | 350,227 | 24,680,956 | 1,874,155 | 62,132,651 | 5,440,666 | 190,894,393 | 14,803,170 |
| Kerosene | 16,920 | 5,020 | 80 | 11 | †146,450 | †40,576 | 301,483 | 55,657 |
| Lubricating oils | 727 | 581 | 2,932 | 1,832 | †1,803,414 | †341,105 | 1,319,083 | 196,366 |
| | Pounds | | Pounds | | Pounds | | Pounds | |
| Paraffin and paraffin wax | 1,030,228 | 41,127 | 1,131,640 | 57,068 | 7,447,213 | 399,480 | 13,843,022 | 559,087 |

*January 1 to September 21. †Beginning September 22.

# He bought a PAGE Fence because it is the *only* fence to be had in ARMCO Ingot Iron





Klumac Cotton Mills, Inc.

Damask

Salisbury, N. C.

General Equipment Co., Dist.,
Page Steel and Wire Company,
Charlotte, N. C.

Gentlemen:-

Your Mr. Hill has just finished the erection of a PAGE-ARMCO Fence around our plant, and we wish to state that it is as handsome a fence as we have ever seen. We bought a PAGE Fence because we wanted one of ARMCO Ingot Iron, as we feel that it will last several times as long as steel fence. Since the erection costs were the same for the ARMCO as for steel fence, we consider ourselves fortunate in being able to get a fence of this material.

Your service has been excellent, and if any textile mill considering the purchase of a fence wants to know what we think of Page Fence and Page Service, you may refer them to us.

Very truly yours,
KLUMAC COTTON MILLS, INC.
(Signed) W. F. McCanless, Sec. & Treas.

WFM/LS

ARMCO Ingot Iron is the most uniformly durable material used for woven wire fencing. Not only does this purest commercial iron resist rust of itself—it takes and holds more firmly a protective coat of galvanizing. Tests indicate it will last several times as long as steel.

Choose a Page-Armco Fence for your plant. It will furnish positive protection at its lowest cost per year.

**In each of the cities listed there is a Page Distributor that carries complete stocks of Page Products and will give prompt estimates and efficient service in construction.**

| | | | |
|---|---|---|---|
| **Alabama** Birmingham | **Indiana** Indianapolis | **Missouri** Kansas City, St. Louis | **Oregon** Medford |
| **California** Los Angeles | **Kentucky** Louisville | **New York** Binghamton, Buffalo, New York City, Rensselaer | **Pennsylvania** Philadelphia, Pittsburgh |
| **Connecticut** New Haven | **Louisiana** New Orleans | | **S. Carolina** Charleston |
| **Colorado** Denver | **Maryland** Baltimore | **N. Carolina** Charlotte | **Tennessee** Chattanooga, Memphis |
| **Florida** St. Petersburg | **Massachusetts** Boston, Springfield | **Ohio** Ashville, Cincinnati, Zanesville | **Virginia** Lynchburg, Richmond |
| **Georgia** Atlanta, Savannah | **Michigan** Detroit | | **Wisconsin** Milwaukee |
| **Illinois** Chicago | **Minnesota** Minneapolis | **Oklahoma** Tulsa | |

IN CANADA: Dominion Chain Company, Niagara Falls, Ont. with distributors in London, Ont.; Montreal, Que.; St. Johns, N. B.; Winnipeg, Man.

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## Protect Your Property This Year

"America's first wire fence-1883"

# PAGE
## PROTECTION FENCE

ARMCO Ingot Iron

*The only wire fence made of Armco Ingot Iron*

# British Petroleum Industry in 1924

## Persian Oil Displacing American in Imports and Soon to Equal Percentage. Merging of Companies Notable Feature

By Mowatt M. Mitchell
*U. S. Trade Commissioner, London*

The year 1923 in the petroleum industry of Great Britain has been marked less by startling innovations of any kind than by the continuance of the two important tendencies which have marked the progress of the industry since the war. These tendencies, which today dominate petroleum development in Great Britain, and which are as pronounced in this year's returns as ever before are (1) the decreasing dependence of this market on any one producing field or country for its petroleum supplies; and (2) the increasing importation of crude petroleum and the decreasing importation of refined products due to the increasing refining facilities in this country.

Both these tendencies of the industry are exceedingly healthful ones so far as Great Britain is concerned, the first because it makes it increasingly difficult for war, civil commotion, or controlled exportation for economic or other reasons anywhere in the world to seriously jeopardize Great Britain's entire supply of petroleum, and the second, because, other things being equal, it is considered much more sound in the broadest economic sense to import a raw product and refine it domestically, with the increased industrial activity which such an operation involves, than to import the more costly finished products.

A third, and also continuing tendency, although not so important perhaps as the first two, is the continued movement toward the consolidation of British producing companies into a few great groups with the ramifications and associated companies of each extending practically all over the world.

### Less From America

The following table is illustrative of the first tendency. A study of it will show that in 1913 60 per cent of petroleum imports of Great Britain came from America, with 10 per cent from Rumania, 7 per cent each from Russia and the East Indian Archipelago, 3 per cent from Persia, and the remainder from British India and scattered countries. By 1918 the war had eliminated completely the Rumanian and Russian supplies, and to a great extent those from the Indian Archipelago and British India, and practically the whole of these losses had been made up by America. In 1919 a slight decrease occurred in receipts from America, with Persia for the first time becoming a factor, though still a small one, in the supply, but with no other great changes. In 1920 America and Persia both gained at the expense of the scattered suppliers, but from that year on the decrease of American participation in the British market has been steady, and the Persian increase has been practically as consistently large. Figures for 1923 indicate an American participation (including the United States and Mexico) to the extent of only 57.7 per cent of the total as against 84.1 in 1920, while the Persian participation for 1923 stands at 29.3 per cent as against 4.3 per cent in 1920. During the three years just passed America has lost 27 per cent in its contribution to the British supply, and Persia has gained 25 per cent.

**Percentage of United Kingdom Imports of Petroleum and Petroleum Products From Various Countries for Years 1913 and 1918-1923***

| | 1913 | 1918 | 1919 | 1920 | 1921 | 1922 | 1923 |
|---|---|---|---|---|---|---|---|
| United States and Mexico | 60.2 | 81.9 | 78.9 | 84.1 | 75.9 | 62.7 | 57.7 |
| Rumania | 10.8 | .... | .... | .1 | .2 | 1. | .3 |
| Russia | 6 8 | .... | .1 | .6 | .1 | .6 | 1.6 |
| East Indies | 6.7 | 2 | 4 | 3.4 | 2.9 | 4.4 | 4.4 |
| British India | 2.3 | .3 | 1.8 | .8 | .2 | .3 | .3 |
| Persia | .3 | .1 | 2.9 | 4.3 | 13.9 | 23.6 | 29.3 |
| All other sources | 12.9 | 15.2 | 12.3 | 6.7 | 6.8 | 6.4 | 6.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

*1923 percentages are estimated from figures available at date of writing.

The same tendency noted in the petroleum imports occurred to even greater degree in the case of the importation of motor spirit (gasoline) into Great Britain. In this product, and in petroleum products as a whole, the conditions governing the changes from 1913 to 1918 were similar, but since that time the losses in American participation and the gains in Persian are even more marked. During those years the American supply has fallen 37.4 per cent, or to about 50 per cent of its percentage of participation in 1918, while the Persian supply has risen by 37.5 per cent of the total, or several hundred times its percentage of participation in 1918. If anything like the same rate of change is continued for another 12 months, and it undoubtedly will be, 1924 will see Persia with a greater participation in the British motor spirit market than America.

### Increasing Domestic Sources

A corollary to this growing independence of any one country or territory for petroleum for the Kingdom is the determination, voiced with increased vigor during the past year by British authorities, to do all possible to develop the extraction of liquid fuels from the sources available in the United Kingdom itself. Drilling operations carried on in this and previous years have practically convinced both governmental and private experts that no commercially exploitable supplies of crude oil are to be found in this country, but with the development of the technique of the breaking down of the coal, peat, oil shale, etc., into benzol and other combustible liquids, there is a growing determination to find the most profitable and practical way of utilizing the vast deposits of raw materials in this country susceptible of such treatment and yield. Not only does the increase in the use of the internal combustion engine and the liquid fuel fired boiler demand some such step, but true economy in the use of coal also dictates such a course. Leaders in this line of thought and action claim that the proper use of the carboniferous deposits of the United Kingdom might possibly render it entirely independent of overseas shipments of any petroleum products. Such a sweeping statement, however, is subject to question.

### Rise in Crude Oil Imports

The second great tendency in the petroleum industry of Great Britain today, that of the increased percentage, as toward the whole petroleum import, of the importation of crude oil for refining in this country with a corresponding decrease in the percentage of the import of refined products is illustrated in the following table (the gallon used in this report is the Imperial gallon, equivalent to 1.2 United States gallons):

**United Kingdom Imports of Petroleum and Petroleum Products With Per Cent of Each Variety for Years 1913 and 1921-1923**

| Petroleum and products of | 1913 Gallons | 1913 Per cent of total | 1921 Gallons | 1921 Per cent of total |
|---|---|---|---|---|
| Crude oil | 1,108,900 | .. | 101,438,990 | |
| Kerosene | 157,141,251 | 32 | 149,348,313 | |
| Gasoline | 100,858,017 | 20 | 251,098,155 | |
| Lubricating oil | 67,962,493 | 14 | 60,966,105 | |
| Gas oil | 65,949,677 | 13 | 76,826,082 | |
| Fuel oil | 95,062,187 | 19 | 631,282,436 | |
| Total | 488,082,525 | .. | 1,160,960,081 | |

| Petroleum and products of | 1922 Gallons | 1922 Per cent of total | 1923 Gallons | 1923 Per cent of total |
|---|---|---|---|---|
| Crude oil | 217,133,911 | 18 | 327,447,464 | |
| Kerosene | 152,537,292 | 12 | 137,847,202 | |
| Gasoline | 311,190,222 | 25 | 334,499,163 | |
| Lubricating oil | 69,440,027 | 6 | 82,687,336 | |
| Gas oil | 70,153,258 | 6 | 74,196,892 | |
| Fuel oil | 392,618,470 | 32 | 367,229,034 | |
| Total | 1,231,073,180 | .. | 1,354,107,375 | |

**Percentage of United Kingdom Imports of Motor Spirit From Various Countries for Years 1913 and 1918-1923***

| | 1913 | 1918 | 1919 | 1920 | 1921 | 1922 | 1923 |
|---|---|---|---|---|---|---|---|
| United States and Mexico | 20.9 | 76.3 | 60.3 | 61.5 | 55.1 | 46 4 | 38.9 |
| Rumania | 5.2 | .... | .... | 0.3 | 1.0 | 0.1 | 0.1 |
| Russia | 13.6 | .... | .... | .6 | .... | .... | .... |
| East Indies | 38.2 | 16.0 | 17.1 | 17.2 | 13.9 | 17 5 | 17.5 |
| British India | 13.4 | 2.8 | 7.7 | 3.8 | .9 | 1.3 | 1.3 |
| Persia | .... | .1 | 8.8 | 11.9 | 24.3 | 30.1 | 37.6 |
| All other sources | 8.7 | 4.8 | 6.1 | 4.7 | 4.8 | 4.6 | 4.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

*1923 percentages are estimated from figures available at date of writing.

First, taking the petroleum imports as a whole, the figures show that from 1913 to 1923 the importation has increased more than 170 per cent. The greatest increases naturally came in the years between 1913 and 1921, but the two years since that date have also shown substantial gains.

### Fuel Oil Figures

By far the most interesting figures, however, are shown for fuel oil. In 1921 531,000,000 gallons, or 40 per cent of the total, were imported; in 1922 this figure had fallen to 392,000.000, or 32 per cent, and in 1923 to 367,000.000, or 27 per cent—a decline of 164,000,000 gallons, or 30 per cent, during a time when the use of fuel oil in Great Britain, both for industrial plants ashore and for ships' bunkers, was increasing with leaps and bounds. During the same years the import of gasoline grew somewhat in volume, but maintained about the same percentage of the total, in spite of the fact that the consumption of gasoline in Great Britain had greatly increased in each of these years. The answer to both of these cases is to be found in crude oil figures. The 1921 import of 100.000.000 gallons, being 8 per cent of the total petroleum import, grew in 1922 to 217,000,000 gallons, or 18 per cent of the total, and in 1923 to 327,000.000 gallons, or 24 per cent of the total. A convincing piece of evidence as to this increase in the refining operations in this country is given by the fact that 1923 will show 215,000,000 gallons of fuel oil supplied to ships' bunkers in British ports, or well over 100,000.000 gallons more than 1922, while the import of fuel oil in 1923 has been 25,000,000 gallons less.

### Kerosene Imports Less

No such interesting figures are to be noted in respect of the other varieties of imported petroleum products. Kerosene shows the steadily decreasing tendency which may be expected with the increase in the use of electricity as an illuminant. The fact that the importation is still as high as it is is accounted for by the increasing rate of reexport of this product. Gasoline has been commented on above and the fact that the increase of import does not keep up with the increase in use, is, as noted, due to the increased rate of refining in Great Britain.

Lubricating oils maintain a steady place as to percentage of the total petroleum import, which means that the quantities imported are increasing along with other products. Less and less lubricating oil is being exported each year, the increase in automotive activity, and the approach to normal industrial activity, with the consequent increase of machinery in operation, accounting for the increased domestic consumption. Gas oil, on the other hand, the importation of which is relatively steady from year to year, is being more largely reexported each year, as might be expected with the decreased consumption of gas as electricity comes into more general use for lighting, heating and cooking.

### Consolidation of Petroleum Interests

The third tendency noted was that toward a consolidation of petroleum producing and distributing interests. It has been best illustrated in 1923 by two examples. The first is the campaign being waged by the Shell interests to gain control of the Anglo-Persian Oil Co. by means of the purchase of the block of stock in that enterprise now held by the British treasury.

The effect of such a sale if made to the Shell group should be advantageous to both parties. At the moment the Anglo-Persian is said to be confronted with problems in marketing, particularly to the retail gasoline consuming public, and it is said that the Shell is in an excellent position through its marketing organization to relieve this situation. On the other hand, the Shell has no producing field in this part of the world, and the Persian field would give it the unit it needs in its world-wide chain of producing centers in or near all the great consuming areas from which to supply its refining and distributing systems. The Persian fields would furnish the supply for the European markets which before the war was obtained from south Russia.

The second most interesting consolidation of the year, and one which has actually been effected, is the taking over of the Angola Oil Field in Portuguese West Africa by a group of the directors of the Phoenix Oil & Transport Co. (Ltd.) and the Rumanian Consolidated Oil Fields (Ltd.).

### Price Changes Few

There have been few price changes in the petroleum market of Great Britain during 1923. In gasoline a cut was made from 2s. 1d. to 1s. 8d. per gallon for the best grade, which was of the greatest direct interest to the consuming public, and the following prices prevailed for other products: Fuel oil, £3 10s.

(Continued on Page 98)

# Quality

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*World Famed for Quality*

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# CONTINENTAL

# INCREASE IN NEW WORK IS SHOWN IN JANUARY

(Continued from Page 38)

a gain of 4,552 bbls. New work also showed an increase with 17 more rigs and 17 more wells drilling.

### WYOMING

**Summary of Field Operations**

| District— | Comp. | Prod. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Big Muddy.. | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Salt Creek . | 27 | 7,590 | 0 | 0 | 43 | 75 | 118 |
| Lance Creek. | 0 | 0 | 0 | 0 | 0 | 7 | 7 |
| Warm Spgs., Grass Creek, etc. ..... | 1 | 250 | 0 | 0 | 6 | 24 | 30 |
| Big Horn B. | 1 | 30 | 0 | 0 | 4 | 20 | 24 |
| Lost Soldier District .. | 0 | 0 | 0 | 0 | 8 | 50 | 58 |
| Rock River District .. | 0 | 0 | 0 | 0 | 0 | 19 | 19 |
| Fremont Co.. | 0 | 0 | 0 | 0 | 4 | 29 | 33 |
| Mule Creek . | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Osage ..... | 0 | 0 | 0 | 0 | 8 | 8 | 16 |
| Natrona Co.. | 1 | 100 | 0 | 0 | 2 | 19 | 21 |
| Lincoln and Uintah Cos | 0 | 0 | 0 | 0 | 4 | 17 | 21 |
| Baxter Basin | 0 | 0 | 0 | 0 | 2 | 13 | 15 |
| Miscellaneous | 0 | 0 | 0 | 0 | 6 | 41 | 47 |
| Total Jan. | 30 | 7,970 | 0 | 0 | 87 | 332 | 419 |
| Total Dec. | 51 | 10,258 | 8 | 4 | 91 | 345 | 436 |
| Difference. | 21 | 2,288 | 8 | 4 | 4 | 13 | 17 |

### MONTANA

**Summary of Field Operations**

| Distr ct— | Comp. | Prod. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Cat Creek .. | 0 | 0 | 0 | 0 | 1 | 22 | 23 |
| Kevin Sun.. | 4 | 315 | 2 | 0 | 13 | 34 | 47 |
| Miscellaneous | 6 | 0 | 6 | 0 | 5 | 102 | 107 |
| Total Jan. | 10 | 315 | 8 | 0 | 19 | 158 | 177 |
| Total Dec. | 17 | 595 | 6 | 1 | 21 | 163 | 184 |
| Difference. | 7 | 280 | 2 | 1 | 2 | 5 | 7 |

### UTAH

**Summary of Field Operations**

| | Comp. | Pro l. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Miscellaneous | 0 | 0 | 0 | 0 | 1 | 25 | 26 |
| Total Jan. | 0 | 0 | 0 | 0 | 1 | 25 | 26 |
| Total Dec. | 0 | 0 | 0 | 0 | 1 | 24 | 25 |
| Difference. | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

New work in the northwest again failed to come up to the number of wells completed during the month. December showed a falling off in every item, though there was a gain in average production per well completed. Another noteworthy feature was the absence of dry holes among the 30 wells brought to completion during the month. Continued cold has caused an almost general shut down all over the Northwest, and new operations will be few until spring opens. Even the Salt Creek Field, which is easier of access than the majority, has felt the effects of the cold weather, but an extensive drilling campaign in this district is expected in the spring. The two increases in the price of crude oil which were realized during the month will have an encouraging effect on oil operators in general.

Montana made the poorest record in many months, with only 10 completed wells and eight of these dry holes. The Kevin Sunburst Field, which usually furnishes a long list of producers, is almost entirely shut down, recording only four completed wells. Six wildcat operations were reported abandoned during the month, though it is probable that the actual abandonment took place earlier in the winter.

The outstanding event in oil annals in the Northwest for January was the drilling in of The Texas Co.'s producer on the Hamilton Dome in Moffat County, Colorado. The well is accorded an initial production of 2,500 barrels and opens a new field to production. Next in importance was the striking of production in the Third Wall Creek sand at Teapot. The Mammoth well is now one foot in the second lense of the sand, and flowing about 60 barrels per day without shooting. The well can not be considered completed, and for that reason is not carried in the columns above.

### CENTRAL OHIO

**Summary of Field Operations**

| County— | Comp. | Prod. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Licking ... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Knox .. .... | 4 | 0 | 1 | 3 | 1 | 2 | 3 |
| Ashland .... | 6 | 0 | 1 | 5 | 3 | 7 | 10 |
| Medina .... | 8 | 0 | 3 | 5 | 5 | 10 | 15 |
| Lorain ..... | 0 | 0 | 0 | 0 | 2 | 5 | 7 |
| Wayne ..... | 10 | 0 | 4 | 6 | 4 | 30 | 34 |
| Richland ... | 5 | 0 | 0 | 5 | 0 | 27 | 27 |
| Vinton ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Hocking ... | 2 | 3 | 1 | 0 | 3 | 2 | 6 |
| Holmes .... | 9 | 40 | 5 | 3 | 3 | 11 | 19 |
| Coshocton .. | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Jackson .... | 3 | 0 | 0 | 3 | 2 | 7 | 9 |
| Athens ..... | 3 | 0 | 2 | 1 | 2 | 5 | 7 |
| Meigs ..... | 0 | 0 | 0 | 0 | 2 | 3 | 5 |
| Huron ..... | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Crawford .. | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total Jan. | 50 | 43 | 17 | 31 | 33 | 115 | 148 |
| Total Dec. | 88 | 110 | 29 | 57 | 38 | 118 | 156 |
| Difference. | 38 | 67 | 12 | 26 | 5 | 3 | 8 |

Completed work in the Central Ohio Field for January shows a heavy decrease, but that was a foregone conclusion, as it happens every season. The weather conditions are to be blamed for the decline, and as none of the wells is to be hurried up to conform with lease conditions, the owners figure that much will be saved in fuel during the zero weather. Out of the 50 completions but two were oil wells, one being a 3-barrel pumper in Hocking County and a 40-barrel deep Clinton sand well found in Prairie Township, Holmes County, by the East Ohio Gas Co. Wayne County has taken the lead in new development work, closely followed by the new Shiloh Field in the northern part of Richland County, the new pool that was opened up some months ago. The Shiloh Field has been held up by bad weather, otherwise it is the opinion that more new work would be under way than any other portion of the Central Ohio area.

Of the 50 wells completed for January, 17 were dry holes and 31 were gas wells.

In new work under way at the close of the month, a net loss of but 8 is small considering weather conditions. Just as soon as weather on the spring order comes, the operators will get busy hunting the new Berea sand pools of the various fields where it is known to exist, and a busy season is in front of the trade, brought about by the increase in the price of crude.

### EASTERN FIELDS

**Summary of Completed Work**

| Field— | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Allegany ..... | 10 | 21 | 0 | 0 |
| Bradford ..... | 58 | 131 | 2 | 9 |
| Middle Field ..... | 6 | 6 | 3 | 1 |
| Venango-Clarion ..... | 21 | 23 | 2 | 1 |
| Butler-Armstrong ..... | 11 | 28 | 3 | 3 |
| Southwest Pennsylvania ... | 21 | 11 | 3 | 15 |
| West Virginia ..... | 96 | 157 | 21 | 51 |
| Southeastern Ohio ..... | 37 | 199 | 11 | 8 |
| Total January .....259 | | 576 | 45 | 79 |
| Total December .....282 | | 738 | 41 | 89 |
| Difference ..... | 23 | 162 | 4 | 10 |

**Rigs and Wells Drilling**

| Field— | Rigs | Drg. | Ttl. |
|---|---|---|---|
| Allegany ..... | 7 | 14 | 21 |
| Bradford ..... | 31 | 57 | 88 |
| Middle Field ..... | 2 | 5 | 7 |
| Venango-Clarion ..... | 7 | 17 | 24 |
| Butler-Armstrong ..... | 5 | 22 | 27 |
| Southwest Pennsylvania ..... | 14 | 32 | 46 |
| West Virginia ..... | 82 | 119 | 201 |
| Southeastern Ohio ..... | 25 | 59 | 84 |
| Total January .....173 | | 325 | 498 |
| Total December .....151 | | 308 | 459 |
| Difference ..... | 22 | 17 | 39 |

The showing made by the southwest Pennsylvania, West Virginia and southeastern Ohio for the first month of the new year was considerably below the result of operations in December. There were fewer wells completed and the new production amounted to a good deal less. In the southwest Pennsylvania fields the three producing wells had an average of 3 2/3 barrels. The general average of the wells listed as producers of oil in January in southwest Pennsylvania, West Virginia and southeastern Ohio, was about 8¼ barrels. Compared with the close of December there was a gain of 4 rigs and 18 drilling wells in these three fields.

Since the credit balance market has made a phenomenal advance in little more than a month it is expected that field work will be revived. It is quite probable that the increase in January over December is in part due to the improvement in general conditions. Operators are convinced that the industry has entered a new era of prosperity and the time not far distant when they can again take up development work even though the chances are slim for anything better than light producers.

### ILLINOIS FIELD

**Summary of Field Operations**

| County— | Comp. | Pro l. | Dry | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|
| Clark ..... | 1 | 35 | 0 | 0 | 4 | 4 |
| Cumberland .... | 0 | 0 | 0 | 0 | 1 | 1 |
| Crawford ..... | 0 | 0 | 0 | 1 | 1 | 2 |
| Lawrence ..... | 0 | 0 | 0 | 0 | 1 | 1 |
| Monroe ..... | 1 | 0 | 1 | 0 | 1 | 1 |
| Coles ..... | 0 | 0 | 0 | 0 | 1 | 1 |
| Wabash ..... | 0 | 0 | 0 | 3 | 2 | 5 |
| Jackson ..... | 0 | 0 | 0 | 0 | 2 | 2 |
| Jefferson ..... | 0 | 0 | 0 | 0 | 1 | 1 |
| Union ..... | 0 | 0 | 0 | 0 | 1 | 1 |
| Fayette ..... | 0 | 0 | 0 | 1 | 0 | 1 |
| Total Jan..... | 2 | 35 | 1 | 5 | 15 | 20 |
| Total Dec..... | 16 | 158 | 5 | 3 | 12 | 15 |
| Difference ... | 14 | 123 | 4 | 2 | 3 | 5 |

Note—One gas well was completed during December in Illinois.

As far as completed work is concerned the Illinois Field made a very poor showing during January, there being but two reported from the entire State, which means that most drilling wells were shut down a larger portion of the month. It is quite a drop from the December figures, but this is usually the case in the field each winter, as very little is done.

At the close of January there were 5 rigs and 15 drilling wells against 3 rigs and 12 drilling wells at the close of December, an increase of 5, indicating that the operators are starting in more briskly than expected.

### LIMA FIELD

**Summary of Field Operations**

| County— | Comp. | Pro l. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Wood ..... | 8 | 144 | 2 | 0 | 10 | 10 | |
| Hancock ... | 7 | 285 | 0 | 0 | 0 | 4 | 4 |
| Allen ..... | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Auglaize ... | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Sandusky ... | 1 | 2 | 0 | 0 | 1 | 0 | 1 |
| Mercer ..... | 7 | 160 | 1 | 0 | 1 | 7 | 8 |
| Van Wert .. | 1 | 14 | 0 | 0 | 1 | 0 | 1 |
| Seneca ..... | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Lucas ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Ottawa ..... | 2 | 18 | 0 | 0 | 0 | 2 | 2 |
| Darke ..... | 2 | 10 | 1 | 0 | 0 | 0 | 0 |
| Harlin ..... | 2 | 0 | 0 | 2 | 0 | 2 | 2 |
| Shelby ..... | 1 | 8 | 0 | 0 | 0 | 1 | 1 |
| Michigan ... | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Total Jan. | 31 | 641 | 4 | 2 | 3 | 35 | 38 |
| Total Dec. | 30 | 632 | 4 | 2 | 6 | 37 | 43 |
| Difference. | 1 | 9 | 0 | 0 | 3 | 2 | 5 |

The Lima Field of northwestern Ohio held its own during January in completed work, there being a total of 31 wells completed, with 4 dry holes, two gas wells, a new initial production of 641 barrels, and 39 old wells abandoned. This is an increase over the December report of one completed well and 9 barrels new production, there being no change in the number of dry holes and gas wells.

New work under way at the close of January shows 3 rigs and 35 drilling wells against 6 rigs and 37 drilling wells at the close of December, a loss of but 5, which is considered good for the bad weather that has prevailed, with the zero mark closely touched for almost the entire month.

The month's feature was the finding of a well in Shelby County, that may mean quite an interesting extension of the old Trenton Rock Field to the south, as there is no production close to the test.

### INDIANA FIELD

**Summary of Field Operations**

| County— | Comp. | Pro l. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Wells ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Jay ..... | 10 | 515 | 2 | 1 | 0 | 11 | 11 |
| Adams ..... | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| Grant ..... | 1 | 15 | 0 | 0 | 0 | 0 | 0 |
| Delaware .. | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Gibson ..... | 1 | 22 | 0 | 0 | 0 | 5 | 5 |
| Pike ..... | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| Sullivan ... | 2 | 0 | 2 | 0 | 0 | 1 | 1 |
| Knox ..... | 2 | 5 | 1 | 0 | 0 | 1 | 1 |
| Total Jan. | 18 | 559 | 6 | 1 | 0 | 21 | 21 |
| Total Dec. | 13 | 497 | 6 | 0 | 3 | 24 | 27 |
| Difference. | 5 | 62 | 0 | 1 | 3 | 3 | 6 |

The January feature in the Indiana Field was centered in the Hotmire Pool, along the dividing line of Jay and Randolph counties, where some exceptionally fine wells were developed, the best of which was Masters, Bundy and Thompson's No. 8 C. Rathbun farm, in Pike Township, Jay County, which produced 239 barrels, the second 24 hours after completion, increasing its production from 176 barrels the first 24 hours to the larger production. The surrounding territory is being well taken under lease following along the Mississinewa River upon which there are already a number of productive pools, extending from the Albany-De Soto Pool in Delaware County, clear across the Ohio State line in Ohio, and numerous other pools will no doubt be found along this stream as the present pools are some distance apart, leaving plenty of room.

### KENTUCKY-TENNESSEE

**Summary of Field Operations**

| County— | Comp. | Pro l. | Dry | Gas | Rigs | Drg. | Ttl. |
|---|---|---|---|---|---|---|---|
| Wayne ..... | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Powell ..... | 1 | 10 | 0 | 0 | 0 | 0 | 0 |
| Estill ..... | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Lee ..... | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Lawrence- | | | | | | | |
| Johnson .. | 6 | 153 | 0 | 0 | 2 | 30 | 32 |
| Johnson- | | | | | | | |
| Magoffin . | 9 | 88 | 1 | 0 | 0 | 26 | 26 |
| Allen ..... | 6 | 3 | 4 | 0 | 0 | 0 | 0 |
| Warren .... | 7 | 52 | 1 | 0 | 0 | 26 | 26 |
| Barren ..... | 6 | 20 | 2 | 0 | 0 | 16 | 16 |
| Simpson .... | 1 | 0 | 1 | 0 | 0 | 2 | 2 |
| Cumberland- | | | | | | | |
| Monroe ... | 5 | 82 | 3 | 0 | 0 | 23 | 23 |
| Owens. oro . | 3 | 66 | 0 | 0 | 0 | 12 | 12 |
| Clinton ..... | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Russell .... | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| McLean .... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Hopkins .... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Owsley ..... | 4 | 55 | 0 | 2 | 3 | 6 | 9 |
| Metcalf .... | 4 | 8 | 1 | 2 | 0 | 3 | 3 |
| Breathitt .. | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Henderson . | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Rowan ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Grayson .... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Elliott .... | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Laurel ..... | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Harlan ..... | 2 | 0 | 2 | 0 | 0 | 6 | 6 |
| Pike ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Knott ..... | 2 | 0 | 0 | 2 | 0 | 6 | 6 |
| Floyd ..... | 1 | 0 | 0 | 1 | 0 | 3 | 3 |
| Marion ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Harlan ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Todd ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Owen ..... | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Morgan .... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Bell ..... | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total Ky... | 53 | 568 | 15 | 7 | 4 | 186 | 190 |
| Tennessee .. | 2 | 0 | 2 | 0 | 1 | 21 | 22 |
| Mississippi . | 1 | 0 | 1 | 0 | 2 | 19 | 21 |
| Alabama ... | 0 | 0 | 0 | 0 | 0 | 11 | 11 |
| Georgia .... | 0 | 0 | 0 | 0 | 1 | 3 | 4 |
| Florida .... | 0 | 0 | 0 | 0 | 6 | 9 | 15 |
| Total Jan. | 61 | 568 | 18 | 7 | 13 | 269 | 282 |
| Total Dec. | 135 | 2,093 | 43 | 4 | 16 | 253 | 269 |
| Difference. | 74 | 1,525 | 25 | 3 | 3 | 4 | 7 |

The Southern Fields of Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida, did not show much in the way of completions and production during the month of January, as the trade has not recovered after the holiday season, but things are livening up to a great extent, now that the price of crude is on the up-grade, and better weather has been promised. Development will not get into full swing until the spring season opens and then there will be a rush of the drill if the talk of the average operator means anything.

No wells of any magnitude were found in any sections of the field which covers the area from the Ohio River south to the Gulf Coast. Much wildcat work is under way throughout the south.

At the close of the month operations showed a loss of but 7, which means that the trade has already started moving around through the field, making new locations and starting the drill in many places.

### SPECIAL FOR OSAGE SALE

For the purpose of accommodating the oil men attending the Osage lease sale to be held at Pawhuska, Okla., on March 18 and 19, the Midland Valley Railroad Co. will run a special train from Tulsa to Pawhuska and return on each of the above dates, leaving Tulsa promptly at 7 a. m., making all stops on flag on the going trip to take on passengers and leaving Pawhuska promptly after the sale is concluded on each date, making all stops on the return trip to discharge passengers at intermediate points.

### PETROLEUM COUNTY BLOCKED

CASPER, Wyo., Feb. 4.—The Montana Court at Lewistown has granted a permanent injunction to prevent the residents of Petroleum County making a division of Fergus County. The matter was thought to have been settled some weeks ago and the new county assured but a hitch in the proceedings came when an injunction was asked for restraining the formation of the new county as outlined.

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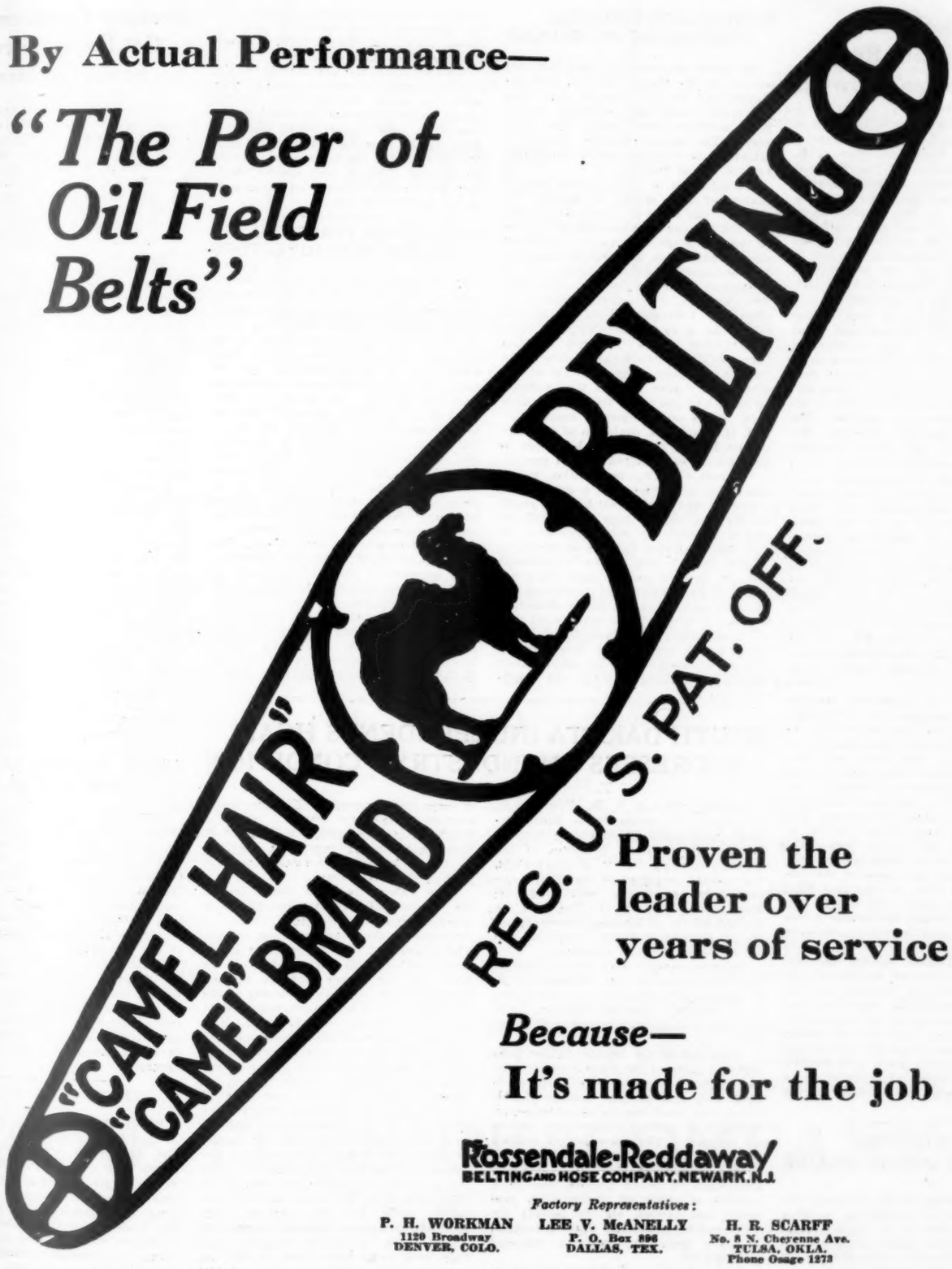


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# REFINING AND MARKETING

## Nicholas Declares South Dakota Reaps McMaster's Sowing

CHICAGO, Feb. 4.—"When a man sows to the wind he generally reaps a whirlwind," was the declaration of L. V. Nicholas, president of the National Petroleum Marketers' Association, after returning to Chicago from the sixth annual convention of the South Dakota Independent Oil Jobbers' Association at Mitchell, January 29 and 30. "Governor McMaster has broadcast his seeds in South Dakota and they are returning in the form of bank failures, lack of business confidence and a mild panic."

Mr. Nicholas explained that during recent months about 50 banks had failed in South Dakota. He asserted that the increasing number of failures was causing the Governor so much trouble that he was forgetting his war on filling station owners, who he alleged are charging exorbitant prices for gasoline. The South Dakota financial situation, Mr. Nicholas predicts, will keep Governor McMaster fully occupied for some time.

Oil men as well as farmers are being hit by the bank failures and the general tieup in money that results. Mr. Nicholas had opportunity to test out sentiment concerning the MacMaster propaganda during his stay in South Dakota, and he declares that the Governor is losing ground daily. Mr. Nicholas explained the struggle of the oil business during the recent months and showed the effects of overproduction to members of the Kiwanis Club at Mitchell. He declared that the oil business had taken a severe loss and was now trying to get out of the "red."

Independent and Standard stations alike are now ignoring the Governor's attempts to market gasoline, which, according to Mr. Nicholas, have been grossly overestimated. The State has been selling at the 16-cent filling station price from the penitentiary at Mitchell. Independents and the Standard have been charging normal prices of 20 cents, tank wagon, and 22 cents, filling station, at the same point for several days. The State gasoline is not being sold rapidly, according to those who attended the convention, as one tank car has been used as a source of supply for nearly two weeks. Near normal or normal prices have been restored in other points in South Dakota.

The South Dakota jobbers endorsed the National Petroleum Marketers' Association's advertising program and decided to do considerable work in newspaper advertising during the coming season. A proposal to base the tank wagon and service station price for gasoline on the Group 3 market price, plus freight, plus a 2-cent State tax, plus a 4-cent distribution charge, was tabled by the members.

## N. P. M. A. MEMBERS GIVEN QUESTIONNAIRE

The membership of the National Petroleum Marketers' Association is being given the opportunity to decide several matters relative to their spring convention. A questionnaire is being sent out to the membership asking whether the tentative dates of April 7, 8, 9 and 10 are satisfactory and whether St. Louis, Louisville or some other point is favored for the convention city. The membership is also given the opportunity of designating preference as to the subject matter for the program.

## MUTUAL-CONTINENTAL AGREEMENT ON MERGER

The much discussed and long heralded merger of the Mutual Oil Co. and the Continental Oil Co. has at last been practically completed, according to official announcement during the past week. The merger involves companies subsidiary or closely allied to the Standard Oil Co. of Indiana.

Consolidation is made through an exchange of four shares of Mutual Oil stock for one share of Continental. Mutual Oil has outstanding 4,200,000 shares of an authorized issue of 6,000,000 shares, par value $5. Continental Oil has outstanding 400,000 shares of an authorized 480,000 shares, par value $25. The exchange of stock will require an additional 1,600,000 shares of Mutual Oil, giving it an outstanding stock issue of 5 800,000 shares. Mutual Oil has been paying dividends at the rate of 50 cents a year and Continental Oil at the rate of $2 a year, so that the exchange of stock will not affect the existing dividend return on Continental stock.

S. H. Keoughan, chairman of directors of the Mutual Oil Co., in his letter to Continental stockholders, said in part:

"Mutual Oil Co., in addition to its marketing properties, has a net production of more than 16,000 bbls. of crude oil per day, with a large number of undrilled locations on proved acreage. It also has a refining capacity in excess of 11,000 bbls. a day. The Continental Oil Co. has for many years been engaged in the business of marketing petroleum products in the Rocky Mountain States. While it has a substantial production in the Salt Creek Field, Wyoming, and a refinery and some production at Florence, Colo., its owned crude supply and refining facilities are insufficient for its marketing requirements. On the other hand, the production and refining capacity of Mutual Oil Co. exceed its present marketing outlet."

Stockholders of the Continental Oil Co. owning substantial amounts have already agreed to make the exchange. Continental stockholders are requested to deliver their stock on or before March 1, 1924, to the New York Trust Co., New York City, or to the International Trust Co., Denver, Colo., in exchange for which they will receive voting trust certificates of the Mutual Oil Co.

## CALIFORNIA STANDARD NAMES NEW DIRECTORS

R. W. Hanna, who has been connected with the Standard Oil Co. of California since 1911 and manager of the Richmond-Calif., refinery since 1922, has been elected to the board of directors of the company. Mr. Hanna was one of three elected to the board following the decision to increase the board membership from 7 to 10 men. He is only 30 years old and is one of the youngest directors ever chosen by the Standard Oil Co. of California. He was born in Franklin, Pa., and lived there until about 1910, when he left for California. His father is R. J. Hanna, vice president of the Standard Oil Co. of California, who was for many years a resident of Franklin and manager of the Eclipse works.

The others selected were W. H. Berg of Oakland, Calif., who has been general manager of the foreign crude oil producing department since 1921, and H. D. Collier, general manager of the refined oil and lubricating sales department. Mr. Berk joined the company in 1901 as a stenographer, while Mr. Collier first became connected with the company as salesman located at Seattle in 1903.

## SOUTH DAKOTA INDEPENDENTS HEAR ADDRESSES ON INDUSTRY'S CONDITION

SIOUX FALLS, S. D., Feb. 4.—At the annual convention of the South Dakota Independent Oil Jobbers' Association, J. H. Cumbow, president of the Cumbow-Lanning Oil Co. of Sioux Falls, was elected president of the State association for the coming year. Other officers elected were: F. H. Buehler of the Dakota Oil Co. of Madison, secretary, and H. D. Crawford of the Vermillion Oil Co. of Vermillion, vice president.

Directors elected were: M. R. Baskerville, Codington Oil Co., Watertown; E. P. Regan, Aberdeen Oil Co., Aberdeen; A. J. Baldwin, Baldwin Oil Co., Lake Preston, and H. L. Freeman of Sioux Falls.

Every one of the 100 oil jobbers from different parts of the State who attended the State convention were well satisfield with the two-day session, during which they heard interesting addresses by speakers of national importance on the oil industry. The consensus of opinion was stated to be that the oil industry had passed through the worst of its financial depression in South Dakota, due to a surplus of crude oil having been produced and thrown on the market the past year by producers, who were stated to have been in desperate financial straits.

Just as business conditions everywhere are improving, even for the farmer, so are conditions in the oil industry getting better, was the view taken by President Cumbow. "The oil men," said he, "were much interested in the reports made at their meetings as to the probable success of the efforts to help finance the farmer to some real prosperity. The association adopted a resolution which it wired to South Dakota's delegation in Congress at Washington urging immediate adoption of the $50,000,000 livestock loan bill pending there this week.

"The jobbers, to show their faith in the resources of the State and its whole business situation, adopted a resolution commending the State on these points. The success of the oil industry is so closely allied with the success of the State and the farmer that the oil men naturally have been keen students of the situation, and I was much surprised to hear their favorable reports on things.

"When people are losing money on anything, whether they are farmers or oil men, it sometimes is hard to get a true slant on conditions. While the oil industry in this State in the past year did not actually lose money, it didn't make the money it should have made, but the more serious factor was that our sources of supply, the independent producers and refiners of the vast Southwest oil country, in trying to handle the flood of oil that came from the wells and the flow which could not be stopped, were stretched to great financial extremity. Their prices naturally dropped until they were away below cost, so the last year has been nothing but the greatest loss to those interests."

President Cumbow stated further that all this had its effect here in South Dakota, and that as a result "none of us are buying any fancy motor cars."

During one of the sessions of the an-

(Continued on Page 82)

## Heating Consumers Get Expert Service From Oil Marketers

CHICAGO, Feb. 2.—An extraordinary record in petroleum products sales for January is reported by the Taxman Refining Co. in the recent issue of its house organ, "T N T." It says: "The Monark Gasoline Co. of Kansas City, Mo., has maintained its lead by a new record that so far as gallonage is concerned is believed to be the record for that locality for any three days in January.

"For these three days in January their gallonage of gasoline, fuel oil and distillate amounted to 330,000 gallons. A goodly part of this was oils for home furnace consumption. The Monark Gasoline Co. has developed the furnace oil division of its business as highly as any concern east of California.

"The company maintains an all-night service and has expert engineers in its employ who are competent to give expert service on practically any make or kind of burner. They find this part of their business is as profitable as their gasoline trade."

A large number of refining companies in the Chicago trade territory report a big demand for home distillates, and many concerns have specialized in giving service to home owners. While the service idea has extended to few companies only in regard to actual work on the mechanical parts of the home installations, several of the companies made fast friends of distillate users during recent cold snaps by calling on the users of their products and gauging the basement tanks. During the worst weather numerous deliveries were made by the oil companies at night and every effort was put forth to promote utmost satisfaction in burner using as far as the oil man was concerned.

## ALLOT EXHIBIT SPACE FOR A. O. M. A. MEET

CHICAGO, Feb. 4.—About half the space allotted oil men for exhibits in the Elizabethan Room of the Congress Hotel during the convention of the American Oil Men's Association in Chicago, March 25, 26 and 27, has been reserved already and the remaining booth spaces will be taken soon, according to the expectations of John D. Reynolds, secretary of the association.

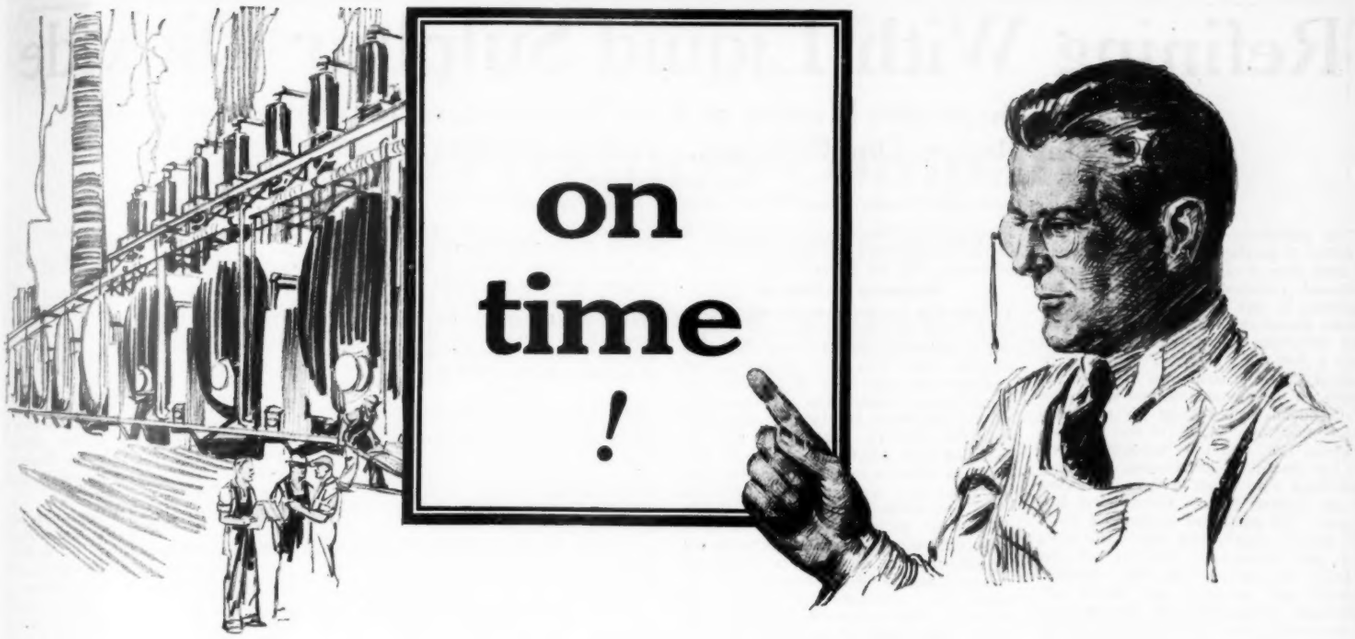
Considerable interest is being shown by oil men everywhere concerning the convention and the committee in charge of the details reports satisfactory progress in the work of securing a good program and planning for the entertainment of the visitors. A large attendance is expected.

### DEATH OF W. B. PRICE

W. B. Price, European representative of the White Eagle Oil & Refining Co. died Janury 30 at Paris, France. The death was a shock to officials of the White Eagle Co. as it was not known that he was ill. Word as to the direct cause of his death has not been received. Mr. Price was widely known in the Mid-Continent where he was at one time located. He formerly represented the Export Oil Corp. in Europe.

### FIFTY MORE CARS

The General American Tank Car Co. through its Chicago offices, has supplied the Landreth Gasoline Co., Breckenridge, Texas, with 50 additional cars.




THERE are no shipping delays to cut down your gallonage--on Pure Oil products. We have the branches, the refineries, the tank cars to handle your business *on time!* This backed by unvarying high quality, means money for you. Wire, phone or write.

***This list will meet the strictest quality-requirements you, or your trade, can make!***

**CABIN CREEK Cylinder Stock**
**LUBRICATING OILS—all grades**
**(mixed cars or carloads)**
**NAVY GASOLINE - - - - - 58-60**
**STEAM REFINED STOCK:**
**600, 650, 600 Warren E**
**FUEL OIL - - - - - - - all grades**
**BRIGHT STOCK**
**40-45 Water White KEROSENE**
**300 OIL or MINERAL SEAL**

# THE PURE OIL COMPANY

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***Independent—and successful, through unvarying high quality in all products***

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# Refining With Liquid Sulphur Dioxide

## Edeleanu Separates Mixture at Low Temperature Into Two Layers, One Brown, One Colorless. Technical Description of Method

By L. Edeleanu

*In Zeitschrift fur Angewandte Chemie. Translated by Albert P. Sachs, Technical Director, Universal Trade Press Syndicate*

The petroleum industry represents a rapidity of development unparalleled even in these days of rapid industrial progress. Although petroleum was known to the ancients, it was in 1859 that Colonel Drake introduced his method of drilling and unlocked the world's oil supplies. Only a few years before, Professor Silliman of Yale had conducted his great research on the composition and utilization of petroleum embodied in his report to the Pennsylvania Rock Oil Co., in 1855. Between 1859 and 1863 the first refineries for obtaining illuminating oils from petroleum were established in succession in the United States, Russia and Rumania. The genius of Rockefeller made the use of illuminating oils world-wide, and the subsequent recovery of the valuable by-products, paraffin, vaseline, asphalt and solvents, and, above all, lubricants accelerated the development. More recently, the increasing demand for the higher boiling residues as fuel oil and the lighter oils for gas engines and diesel motors has actually brought about a problem of supplying the demand.

The production in the United States in 1859 was 300 tons of petroleum; in 1863 the Russian production was only 9,000 tons. The world production in 1922 was 127,000,000 tons, which at the conservative figure of $16 for the refined products from a ton of crude represents a value in excess of $2,000,000,000. This vast output has been made possible by advances in the methods of drilling and improvements in storage and transportation.

### Refinery Improvements Slower

It is a fact that improvements in refining have not at all kept pace with the industrial advances. At the very beginning of the industry it was learned that treatment with sulphuric acid followed by washing or neutralizing with alkalis removed certain ill-smelling, resinifying and color producing substances from the crude distillates and this observation is the foundation of the methods still generally used in petroleum refining. Theoretical knowledge of petroleum although enriched by numerous scattered observations has advanced very slowly, indeed. Sulphuric acid treatment gave commercially satisfactory results so long as the products demanded by industry were not subjected to stringent specifications. As the demand for high grade products increased and as sources other than the Pennsylvania and Caucasus oils did not yield products of such excellence, a new method of refining was felt to be needed in certain quarters.

More than 20 years ago Professor Kramer had already shown that the presence of heavy hydrocarbons rich in carbon prevented the recovery of a good illuminating oil from Rumanian petroleum. The cause of this was assumed to be due to the differences in physical properties from the satisfactory products from Pennsylvania crude, so that attempts were made to obtain fractions with the same density, color, odor, viscosity, etc., whereas the true cause was due to a fundamental difference in composition, namely the high content of unsaturated and cyclic hydrocarbons in the Rumanian oil. Products more highly refined than the Pennsylvania products were unsatisfactory when thested in the only useful way, namely in the lamp, for they burned with smoke and soot and gave off a disagreeable burning odor. This was finally overcome by the use of specially designed lamps, but these never found great favor with the consumers, who reasoned that good oils burned well in any lamp, while the new lamps were necessary only for inferior oils.

### Confusion in Methods

Confusion in the question of quality arose from the testing methods worked out in scientific laboratories. The distillation test was one criterion, but Pennsylvania oil with a 130°-320° C. range burned better than a (presumably better) Rumanian oil with a range of only 130°-270° C. Although it must be conceded that laboratory tests of this kind are valuable in comparing oils from the same or a similar source, they fail when applied to oils of different origin.

In order to learn the true cause of these differences physical tests were not enough; it was necessary to study the chemical nature of the various oils and distillates. Edeleanu has shown the especially high content in aromatic and cyclic compounds of Rumanian oils as compared to American and Russian oils (which are richer in aliphatic and naphthenic hydrocarbons), and has separated and investigated these substances. Burning tests made with these separated hydrocarbons showed the poor burning qualities of the distillates to be due to these cyclic and unsaturated hydrocarbons. For the burning test (the "Smoke Test" as used in the United States and Great Britain) was carried out as described in Figure 1.

The next question was how to remove the undesirable substances. More extensive treatment with sulphuric acid was not practicable as the amount of acid to be consumed and the quantities of acid-sludge produced and oil lost made such a procedure far too expensive. The action of various solvents such as alcohol, ether, glacial acetic acid, etc., was tried, and separation did occur, but could not be utilized commercially because of the cost.

Liquid sulphur dioxide was tried and found satisfactory. When added to a distillate from Bustenari (Rumanian) crude, shaken and allowed to stand, two layers formed, the lower containing the sulphur dioxide and the compounds dissolved in it. The layers were separated and the sulphur dioxide driven off. The original distillate was 0.820 specific gravity, the refined product 0.803 specific gravity and the extract (that is the part removed by the sulphur dioxide) 0.865 specific gravity. Several Rumanian oils gave the figures in Table 1.

Table 1

Original Distillate — Origin, Bustenari; specific gravity, 0.8200; specific gravity of products, refined, 0.8028; extract, 0.8650; yield from distillate in per cent, refined, 75.0; extract, 25.0.

Original Distillate—Origin, Campina 1; specific gravity, 0.8200; specific gravity of products, refined, 0.8040; extract, 0.9037; yield from distillate in per cent, refined, 82.1; extract, 17.9.

Original Distillate—Origin, Campina 2; specific gravity, 0.8125; specific gravity of products, refined, 0.7968; extract, 0.8940; yield from distillate in per cent, refined, 82.9; extract, 17.1.

Original Distillate—Origin, Moreni; specific gravity, 0.8180; specific gravity of products, refined, 0.8050; extract, 0.8680; yield from distillate in per cent, refined, 77.0; extract, 23.0.

Original Distillate—Origin, Tintea; specific gravity, 0.8200; specific gravity of products, refined, 0.8090; extract, 0.8730; yield from distillate in per cent, refined, 82.5; extract, 17.5.

Both the refined product and the extract, although differing in specific gravity, showed the same distillation range and showed why they could not be separated by distillation from each other. Table 2 gives the temperatures at which fractions each equal to 5 per cent of the total of both the refined and extract boiled and shows the gravity of successive 10 per cent fractions of a Bustenari distillate.

Table 2

| | Refined | | Extract | |
|---|---|---|---|---|
| No. | Temp. °C. | Sp. Gr. | Temp. °C. | Sp. Gr. |
| 1 ..... | 125-145 | 0.7712 | to 144 | 0.8088 |
| 2 ..... | 145-148 | | 144-148 | |
| 3 ..... | 148-152 | 0.7789 | 148-153 | 0.8165 |
| 4 ..... | 152-155 | | 153-156 | |
| 5 ..... | 155-158 | 0.7835 | 156-159 | 0.8251 |
| 6 ..... | 158-161 | | 159-162 | |
| 7 ..... | 161-164 | 0.7915 | 162-165 | 0.8308 |
| 8 ..... | 164-172 | | 165-167 | |
| 9 ..... | 172-175 | 0.7996 | 167-172 | 0.8424 |
| 10 ..... | 175-178 | | 172-180 | |
| 11 ..... | 178-182 | 0.8060 | 180-187 | 0.8591 |
| 12 ..... | 182-195 | | 187-193 | |
| 13 ..... | 195-200 | 0.8210 | 193-202 | 0.8644 |
| 14 ..... | 200-210 | | 203-211 | |
| 15 ..... | 210-224 | 0.8395 | 211-221 | 0.8866 |
| 16 ..... | 224-229 | | 221-232 | |
| 17 ..... | 229-241 | 0.8585 | 232-246 | 0.9151 |
| 18 ..... | 241-254 | | 246-257 | |
| 19 ..... | 254-273 | 0.8837 | 257-274 | 0.9424 |
| 20 ..... | Residue | | Residue | |

This table shows that substances of the same boiling point but different specific gravity exist in the Rumanian distillates and are separated by liquid sulphur dioxide.

The most suitable temperature, based on the solubilities of the various classes of hydrocarbons is found to be 10° C. (14° F.) as at that temperature the cyclic and aromatic hydrocarbons are completely soluble in sulphur dioxide while the others are relatively insoluble.

Tables 3 and 4 of which the following is an excerpt show the relation between the various products and yields obtained.

Bustenari crude, specific gravity 0.8589, yields 15 per cent rectified benzine, 33 per cent illuminating oil and 52 per cent residue.

The 33 per cent illuminating on washing with sulphuric acid yields 32.5 per cent oil with specific gravity 0.8195 and flash point of 28° C.

The 33 per cent illuminating oil on treatment at 10° C. with liquid sulphur dioxide yields 24.7 per cent of specific gravity 0.8030 and flash point 29°, and 8.3 per cent of extract of 0.8650 specific gravity which on redistillation to 200° C. gives 4.8 per cent of white spirit of 0.8290 specific gravity and 3.5 per cent of heavy gas oil of 0.9210 specific gravity.

### Process Described

On mixing a petroleum fraction with sulphur dioxide in a closed vessel the following occurs: An amount of sulphur dioxide corresponding to the temperature of the test dissolves in the oil. Further additions of sulphur dioxide cause 2 layers to form, the lower containing sulphur dioxide with aromatic and cyclic hydro-

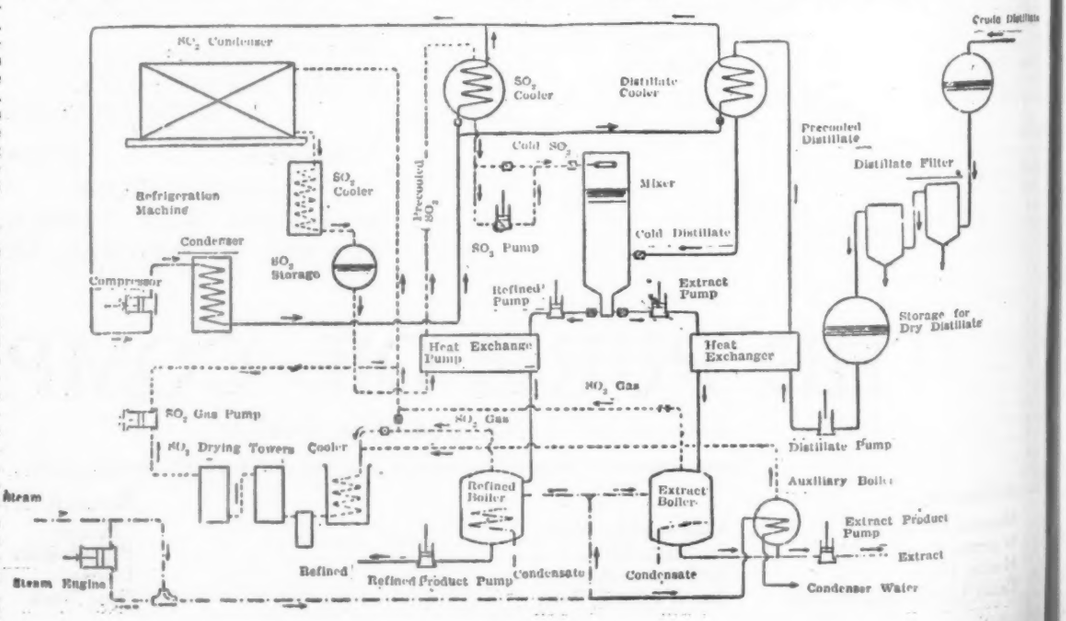



FIGURE NO. 2
Schematic Representation and Flow Sheet of an Edeleanu Process Plant

# Gasoline Products Company Inc.

## 700 Baltimore Ave. Kansas City, Mo.

**THE ONLY REPRESENTATIONS MADE FOR THE CROSS PROCESS ARE THE CONSTRUCTION AND OPERATION RECORDS TO DATE OF PLANTS ACTUALLY OPERATING, AND THE FOLLOWING STATEMENTS ARE TAKEN THEREFROM:**

**Throughput** per unit per day, 1,000 barrels, of which half is virgin oil and half cyle stock; a unit thus consumes 500 barrels of charging stock per day.

New **Navy Gasoline** produced per unit per day, 300-350 barrels.
Fuel oil produced per day, 120-170 barrels, of 15-25°Be. gravity and minus 10°F. cold test.

**Gasoline Yields:** From 30-35 gas oil, 60 per cent. From 37-42 kerosene, 70 per cent.

**Fuel Oil Consumption:** 1 per cent.
When on stream, the plant runs entirely on its own incondensible gas; no gas holders or systems required.

**Operation Cost,** including Labor, Materials, Fuel Oil, Overhead, Depreciation, License Charge, and treating and rerunning to finished New Navy, $1.00 to $1.10 per barrel of gasoline made.

**License Charge** (Subject to change without notice): 10c per barrel throughput, or the alternative of 8 1/3 mills per gallon of gasoline made.

**Labor Required:** 2 men per shift for single unit.
3 men per shift for double unit.

**Cycle:** 6 to 25 days on stream, depending on stock charged; unit cooled, cleaned and back on stream in 20 to 26 hours.

**Factors of Safety** throughout, 5 to 1.
Reaction chamber, 10 to 1.

**PER MONTH OF 30 DAYS, USING AVERAGE GAS OIL AND INCLUDING TIME FOR SHUT DOWN, ETC.**

Said unit will:

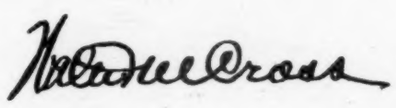
(1) Produce 7,500 barrels of New Navy gasoline;

(2) Use up 12,000-13,000 barrels of gas oil;

(3) Produce 3,250 barrels of fuel oil, 15-20°Be. gravity; minus 10°F. cold test; flash approximately 250°F.; free from colloidal carbon.

Remaining 6 to 10 per cent will be coke, gas and loss.

**Patents:** There are no suits pending against the Cross Process, and the Gasoline Products Company issues licenses for its use under its own patents and those of The Texas Company, the Standard Development Company, the Standard Oil Company of Indiana, and the Standard Oil Company of New Jersey. **No individual, firm or corporation has the right to use the Cross Process except under license contract issued solely by the Gasoline Products Company, owners of the Cross patents.**



carbons dissolved in it. The ratios of the various hydrocarbons and the proportions of sulphur dioxide determine the actual separations. A completely quantitative separation does not occur and is not commercially necessary. With a Borneo distillate containing 46 per cent of aromatic hydrocarbons separation does not occur with 2/3 of its weight of sulphur dioxide at 7° C., but first occurs at 10° C., whereas a Mexican distillate with 17 per cent aromatics shows separation even at +10° C, with an equal weight of sulphur dioxide. Each product must be treated according to its composition and the procedure is determined by trial.

Table 5

| Temp. °C. | Per Cent in Extract Layer |
|---|---|
| —10 | 22.9 |
| — 9 | 22.1 |
| — 8 | .... |
| — 7 | .... |
| — 6 | .... |
| — 5 | 21.7 |
| — 4 | 21.2 |
| — 3 | 20.7 |
| — 2 | 19.8 |
| — 1 | 18.4 |
| 0 | .... |
| 1 | 18.2 |
| 2 | 17.3 |
| 3 | .... |
| 4 | 16.4 |
| 5 | 15 7 |
| 6 | 15.1 |
| 7 | 14.2 |
| 8 | 13.1 |
| 9 | 11.4 |
| 10 | 9.9 |
| 11 | 9.4 |
| 12 | 6.5 |
| 13 | 3.6 |
| 14 | none |

Table 5 gives the percentage of the total volume (on mixing various illuminating oils with 2/3 of their weight of sulphur dioxide) which separates as the extract layer, at various temperatures. A Bustenari distillate containing 25 per cent of aromatics is given as an example.

Table 6 shows how various distillates treated by the usual methods and the Edeleanu method stand up under various conditions. An example is given below:

Table 6

Origin, Bustenari; method of refining, distillate; specific gravity, 0.820; Baume, 40.73.

Method of refining, sulphuric acid; specific gravity, 0.8195; Baume, 40.83; average lighting value in international units, 8-hour test, 7.8; lamp test, poor.

Method of refining, sulphur dioxide; specific gravity, 0.8025; Baume, 44.39; average lighting value in international units, 8-hour test, 14.5; lamp test, good.

The extract, after sulphur dioxide is driven off is commercially useful as a solvent as "Test benzin" or "White Spirits."

Table 7 compares these products derived from the extract with various commercial solvents and turpentine substitutes.

On pyrogenetic decomposition (i. e. "cracking") the extract is converted to the lower homologs of benzine with gas and tar formation and can consequently be utilized in this way to produce the usual coal tar fractions if desired. The yields are given in a table. The sulphur dioxide process also serves to remove sulphur compounds from the distillates and is followed by treatment with ½-1 per cent of sulphuric acid, the sulphur content can be reduced to 0.01 per cent to 0.1 per cent depending on the original sulphur content of the distillate.

### Treat Lubricants Also

Lubricating oil fractions can be treated as well as the lighter fractions, yielding a high grade temperature—resistant lubricant and a poorer fraction which after treatment with a little sulphuric acid gives a lubricant of a poorer quality.

A small scale plant was erected at Ploesti for larger laboratory experiments and to aid in designing a large scale plant.

The firm of A. Borsig of Berlin-Tegel provided the equipment for a plant at Rouen, a second and third in Rumania, a fourth of 250 tons daily capacity in the Dutch Indies, and since then the process has been adopted by various firms.

The process has recently been used with lignite tar oils with great success.

The schematic representation and flow sheet of an Edeleanu Process Plant is shown in Figure 2. The main part of the installation consists of 5 pieces of equipment, the two coolers in which the distillate and the liquid sulphur dioxide are cooled, the mixer in which mixing and seperation of the layers is carried out, and the two vaporisers which serve to separate the refined and the extract from sulphur dioxide and to return the latter to the system for further use.

### Mode of Operation

In the following section the treatment of a Rumanian Bustenari distillate is described and should be followed with the aid of Figure 2.

The distillate to be treated is dried in a filter containing salt and flows into a storage tank from which it is pumped through a heat exchanger to the distillate cooler where it is cooled to the requisite temperature. Similarly the liquid sulphur dioxide flows from a storage tank through a heat exchanger and cooler and cooled to the proper temperature. The distillate cooled to 10° C. (+14° F.) is run into the deep mixer, which is suitably provided with gage-glasses and sight-glasses so that the operations can be followed visually. Sulphur dioxide is run into the mixer. At first no change is seen as the sulphur dioxide dissolves in the distillate until saturation. Then suddenly dark clouds seem to settle out and the color changes to brown. This is caused by the settling out of the aromatic hydrocarbons dissolved in sulphur dioxide. Two sharply distinct layers are formed. As soon as a certain volume of extract is formed, the drawing off begins, but more liquid sulphur dioxide is constantly run in. The extract pump pumps the extract through the heat exchanger to the extract boiler. In the heat exchanger the cold extract

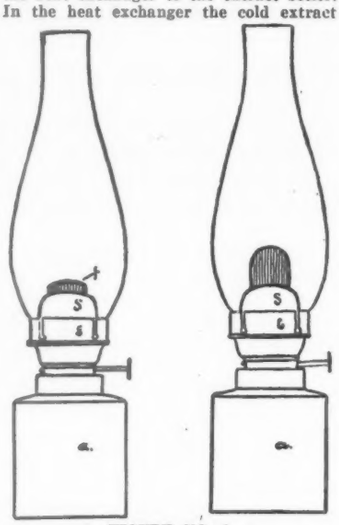


FIGURE NO. 1

The burning test is made as follows: Fill the container in one of the lamps shown in Figure 1 and light the wick. Then regulate the wick so that the flame is 5-6 mm (¼-inch) above the metal capsule and allow the lamp to burn in this way for 4-6 hours. With a good oil the flame should produce no smoke and deposit no soot on the lamp chimney. ... ..... ..... .....

cools the warm distillate going to the distillate cooler. The extract is thus prewarmed and in the extract boiler is heated to drive off the dissolved sulphur dioxide which flows to a condenser, where it is liquified and returns to the sulphur dioxide storage to start its cycle again. As soon as most of the sulphur dioxide is driven off from the extract, the evolution of gas slows up as the tail end of the sulphur dioxide is firmly retained and cannot be driven off by simple application of heat. The extract is then run into an auxiliary boiler where the residual sulphur dioxide is removed by means of a sulphur dioxide gas pump with further heating until the content is reduced to 0.3 per cent when the extract goes to the extract storage.

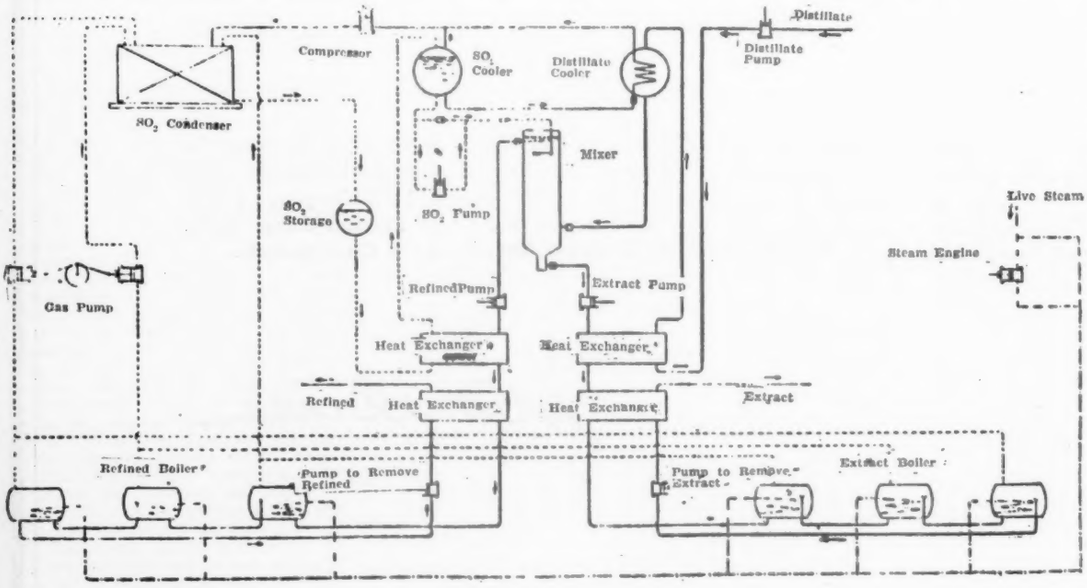



FIGURE NO. 3
Flow Sheet of a Proposed Installation

This new process is thus suited to separate by physical means the classes of hydrocarbons contained in petroleum. Good illuminating oils can be obtained from asphaltic, high-sulphur and other inferior crude oils, and serves also to obtain lubricants with a superior heat resistance. Hard and soft paraffins from lignite tar can be seperated and lubricants with an excellent cold-test obtained. The process can also be used to separate crude montan-wax into resin and wax fractions.

## S. D. INDEPENDENTS TOLD OF CONDITIONS

(Continued from Page 78)

nual convention of State Independent Oil Jobbers, L. V. Nicholas, president of the National Petroleum Marketers' Association, of Chicago, was asked to tell the oil men something about the fundamental situation of the oil industry.

Mr. Nicholas brought out that the surplus of crude oil has been dropping rapidly so that, from present indications, it will disappear entirely in the next few months. He stated that already refiners and pipe lines are bidding up the price of crude, against the day of there being less crude on the market than the market will normally consume. Of course, it was stated, there are big stocks of oil in storage which will take care of the demand until new fields are found, but in the meantime, it was his view, the price will go up a bit.

Mr. Nicholas said prices at the refineries have already more than doubled over what they were two months ago, so that the price to the consumer has had to be advanced considerably. How much further the advance will go depends on how conditions in the Southwest work out. Mr. Nicholas said the refiners and producers have heavy losses to recoup before they can be on a profitable basis, that nearly half the refineries in the country have been shut down, due to the strain, so one can readily see how severe conditions have become.

"The aim of the South Dakota Independent Oil Jobbers' Association this year," said President Cumbow, "as it has been in the past, is to work with all organizations and government authorities for the best interests of the public and to do it at only a reasonable profit. We want to get our stations and equipment in shape and so located as to be able to serve the State with petroleum products in the most economical fashion, and in full support of the farmer for the big crop output this year.

"We also want to work out a publicity campaign to tell the public the facts of oil, through newspaper advertising throughout the State, and by other means at the command of the jobbers. In fact, considerable time was devoted in the convention to discussing how the South Dakota jobbers would 'tie up' to a big advertising campaign the country over, to advertise a national independent brand for all their goods. The membership voted to join this campaign. Many companies already are working out details to take care of their own part in it and start it in their own territories."

One of the entertainment features during the annual convention of oil jobbers was a banquet tendered the oil men by the Kiwanis Club of Mitchell.

## CANNOT BUY CRUDE; CLOSES

OKLAHOMA CITY, Okla., Feb. 4—The plant of the Home Refining Co. in Oklahoma City, owned by G. W. Turley, has been closed because of Mr. Turley's inability to buy crude. He continues to operate his filling stations here.

"The order of the day," says Turley, "seems to be to store crude rather than sell it. Consequently not many refiners are able to get what they want. I am a producer myself and I have decided to join the storage crowd."

# BIGGS TANKS

## For *Refinery Equipment*

Fractionating Towers or Columns

Dephlegmating Towers

Pressure Stills for Cracking Process

Steam Stills

Heat Exchangers

Crude Stills

YOU know that every year you spend in the refinery business teaches you some new wrinkles for turning out better products at lower cost.

The same thing holds true in tank construction. If you want real value for your money,—if you want tanks that will last and keep on lasting, look to the past record and experience of the maker.

Thirty-six years devoted to fabrication of high grade steel plate construction has certainly taught us how to avoid the weaknesses that affect tank life.

Every year has marked a steady advance, both in knowledge of the best manufacturing methods and in the respect of tank users everywhere.

Through these years the keynote of Biggs policy has been "Accuracy." If you were to visit the Biggs Plant you would read this truth in every move of the skilled workmen,—in the precision machinery, the up-to-the-minute handling equipment, the rigid tests, the careful selection of materials and other plant activities.

Safeguard your tank investment by dealing with a company whose methods as well as products have been thoroughly time tested.

Let Biggs engineers work with you on your next tank requirement.

**MADE RIGHT ALWAYS TIGHT**

**THE BIGGS BOILER WORKS CO., Akron, 35, Ohio**

Condenser Boxes

Agitators

Run Down Tanks

Crude Storage

Blending Tanks

High Pressure and Accumulator Tanks

Direct Heat Driers

Etc.

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# CRUDE PETROLEUM STATISTICS FOR THE YEAR 1923

(Continued from Page 60)

vision, those for 1922 are final and include oil consumed on the leases and net increase of producers' stocks.

## BY STATES

(Barrels of 42 U. S. Gallons)

| | November, 1923* Total | November, 1923* Daily Av. | December, 1923 Total | December, 1923 Daily Av. | Jan.-Dec., 1923 | Jan.-Dec., 1922 |
|---|---|---|---|---|---|---|
| Arkansas | 2,735,000 | 91,167 | 2,627,000 | 84,742 | 24,459,000 | 12,712,000 |
| California | 22,398,000 | 746,595 | 21,899,000 | 706,427 | 263,729,000 | 138,468,000 |
| Colorado | 5,700 | 190 | 4,500 | 145 | 67,000 | 97,000 |
| Illinois | 693,000 | 23,100 | 686,000 | 22,129 | 8,710,000 | 9,383,000 |
| Indiana: | | | | | | |
| Southwestern | 62,000 | 2,067 | 59,000 | 1,903 | 792,000 | 848,000 |
| Northeastern | 18,000 | 600 | 20,000 | 645 | 253,000 | 239,000 |
| Total Indiana | 80,000 | 2,667 | 79,000 | 2,548 | 1,045,000 | 1,087,000 |
| Kansas | 2,348,000 | 78,267 | 2,309,000 | 74,484 | 27,966,000 | 31,766,000 |
| Kentucky | 628,400 | 20,947 | 640,300 | 20,655 | 8,075,200 | 8,973,200 |
| Louisiana: | | | | | | |
| Gulf Coast | 181,000 | 6,033 | 177,000 | 5,710 | 2,250,000 | 1,747,000 |
| Rest of State | 1,593,000 | 53,100 | 1,586,000 | 51,129 | 22,526,000 | 23,629,000 |
| Total La. | 1,774,000 | 59,133 | 1,762,000 | 56,839 | 24,776,000 | 25,376,000 |
| Montana | 148,000 | 4,933 | 156,000 | 5,032 | 2,549,000 | 2,449,000 |
| New York | 105,000 | 3,500 | 113,000 | 3,645 | 1,252,000 | 1,000,000 |
| Ohio: | | | | | | |
| Cent. and East. | 402,000 | 13,400 | 398,000 | 12,839 | 4,916,000 | 4,751,000 |
| Northwestern | 172,000 | 5,733 | 170,000 | 5,484 | 2,160,000 | 2,030,000 |
| Total Ohio | 574,000 | 19,133 | 568,000 | 18,323 | 7,076,000 | 6,781,000 |
| Oklahoma: | | | | | | |
| Osage County | 2,682,000 | 89,400 | 2,702,000 | 87,161 | 27,719,000 | 28,216,000 |
| Rest of State | 9,781,000 | 326,039 | 9,415,000 | 303,703 | 122,154,000 | 111,355,000 |
| Total Okla. | 12,463,000 | 415,439 | 12,117,000 | 390,863 | 159,873,000 | 149,571,000 |
| Pennsylvania | 551,000 | 18,367 | 557,000 | 17,968 | 7,263,000 | 7,425,000 |
| Tennessee | 600 | 20 | 700 | 22 | 7,700 | 9,800 |
| Texas: | | | | | | |
| Gulf Coast | 2,131,000 | 71,033 | 2,131,000 | 68,742 | 29,311,000 | 25,370,000 |
| Rest of State | 13,413,000 | 447,100 | 8,539,000 | 275,452 | 99,104,000 | 83,314,000 |
| Total Texas | 15,544,000 | 518,133 | 10,670,000 | 344,194 | 128,415,000 | 118,684,000 |
| West Virginia | 482,000 | 16,066 | 497,000 | 16,032 | 6,402,000 | 7,021,000 |
| Wyoming: | | | | | | |
| Salt Creek | 3,463,000 | 115,433 | 3,426,000 | 110,516 | 35,565,000 | 19,285,000 |
| Rest of State | 836,300 | 27,877 | 780,500 | 25,178 | 8,482,000 | 7,430,000 |
| Total Wyom. | 4,299,300 | 143,310 | 4,206,500 | 135,694 | 44,047,000 | 26,715,000 |
| Other | | | | | | 13,000 |
| Grand total | 64,829,000 | 2,160,967 | 58,892,000 | 1,899,742 | 725,702,000 | 557,531,000 |

*Revised.

## BY FIELDS

(Barrels of 42 U. S. Gallons)

| | November, 1923* Total | November, 1923* Daily Av. | December, 1923 Total | December, 1923 Daily Av. | Jan.-Dec., 1923 | Jan.-Dec., 1922 |
|---|---|---|---|---|---|---|
| Appalachian | 2,169,000 | 72,300 | 2,206,000 | 71,161 | 27,906,000 | 29,180,000 |
| Lima-Indiana | 190,000 | 6,333 | 190,000 | 6,129 | 2,413,000 | 2,269,000 |
| Ill. & S. W. Ind. | 755,000 | 25,167 | 745,000 | 24,033 | 9,502,000 | 10,231,000 |
| Mid-Continent | 32,552,000 | 1,085,073 | 27,177,000 | 876,670 | 343,928,000 | 310,992,000 |
| Gulf Coast | 2,312,000 | 77,066 | 2,308,000 | 74,452 | 31,561,000 | 37,117,000 |
| Rocky Mountain | 4,453,000 | 148,433 | 4,367,000 | 140,871 | 46,663,000 | 29,261,000 |
| California | 22,398,000 | 746,595 | 21,899,000 | 706,427 | 263,729,000 | 138,468,000 |
| Other | | | | | | 13,000 |
| Total | 64,829,000 | 2,160,967 | 58,892,000 | 1,899,742 | 725,702,000 | 557,531,000 |

*Revised.

## STOCKS

Stocks of crude petroleum for statistical purposes are classified as follows:

1. Producers' Stocks—Petroleum held on the producing properties (lease or "field" storage). Producers' stocks are reported to the Geological Survey annually and are included in the Survey's final statistics.

2. Pipe Line and Tank Farm Stocks—Petroleum that has been transported from the producing properties but not delivered at refineries or at other points of consumption and is held on tank farms, in tanks along pipe lines, and in the lines. Pipe line and tank farm stocks constitute more than 90 per cent of the petroleum held in storage in the United States. For the States east of California such stocks are reported monthly to the Geological Survey as gross stocks, including the total contents of tanks and pipe lines, and as net stocks, which are gross stocks minus sediment and water. The stocks reported for California are compiled by the Pacific Coast office of the American Petroleum Institute and include producers', pipe line and tank farm stocks (but not refinery stocks) of crude oil, residuum and tops.

3. Refinery and Other Consumers' Stocks—Petroleum that has been delivered at refineries and at other points of consumption. Stocks of crude petroleum held at refineries are compiled by the Bureau of Mines.

### PIPE LINE AND TANK FARM STOCKS OF CRUDE PETROLEUM ON LAST DAY OF MONTH—(Barrels)

**Stocks of Domestic Petroleum Are Reported by Fields of Origin, Not by Location of Storage**

| Domestic petroleum: | Nov. 30, '23* | Dec. 31, '23 | Dec. 31, '22 |
|---|---|---|---|
| East of California, gross and net pipe line and tank farm stocks: | | | |
| Appalachian: | | | |
| N. Y., Pa., W. Va., Eastern and Central Ohio: | | | |
| Gross | 6,560,000 | 6,606,000 | 6,200,000 |
| Net | 6,284,000 | 6,331,000 | 5,941,000 |
| Kentucky: | | | |
| Gross | 3,074,000 | 3,007,000 | 3,041,000 |
| Net | 2,946,000 | 2,879,000 | 2,927,000 |
| Lima-Indiana: | | | |
| Gross | 1,166,000 | 1,211,000 | 933,000 |
| Net | 930,000 | 975,000 | 848,000 |
| Illinois-S. W. Indiana: | | | |
| Gross | 11,905,000 | 11,528,000 | 10,641,000 |
| Net | 11,459,000 | 11,091,000 | 10,140,000 |
| Mid-Continent: | | | |
| Oklahoma, Kansas, Cent. and North Texas: | | | |
| Gross | 182,127,000 | 182,312,000 | 147,456,000 |
| Net | 171,036,000 | 171,041,000 | 136,601,000 |
| Northern Louisiana and Arkansas: | | | |
| Gross | 31,762,000 | 32,927,000 | 16,617,000 |
| Net | 29,101,000 | 31,123,000 | 15,972,000 |
| Gulf Coast: | | | |
| Gross | 25,077,000 | 24,355,000 | 26,373,000 |
| Net | 24,726,000 | 23,974,000 | 24,781,000 |
| Rocky Mountain: | | | |
| Gross | 16,977,000 | 18,737,000 | 3,002,000 |
| Net | 16,968,000 | 18,723,000 | 1,991,000 |
| Total pipe line and tank farm stocks east of Cal.: | | | |
| Gross | 278,648,000 | 280,682,000 | 213,369,000 |
| Net | 263,448,000 | 266,137,000 | 196,634,000 |
| California (as stated above) | 63,423,000 | 62,162,000 | 49,876,000 |
| Imported crude petroleum and topped oil topped in Mexico held in the U. S. by importers elsewhere than at refineries: | | | |
| At Atlantic Coast stations: | | | |
| Crude petroleum | 318,000 | 324,000 | 202,000 |
| Topped oil topped in Mexico | 2,604,000 | 2,806,000 | 2,642,000 |
| At Gulf Coast stations: | | | |
| Crude petroleum | 789,000 | 1,059,000 | 1,616,000 |
| Topped oil topped in Mexico | 495,000 | 565,000 | 602,000 |
| Total | 4,206,000 | 4,754,000 | 5,062,000 |
| Total domestic net pipe line and tank farm stocks east of California; producers' pipe line and tank farm stocks in California, plus stocks of imported crude petroleum held in the U. S. by importers elsewhere than at refineries | 331,077,000 | 333,053,000 | 253,572,000 |

*Revised.

### DAYS' SUPPLY OF PIPE LINE AND TANK FARM STOCKS

(Based on monthly rate of deliveries of crude petroleum to consumers)

October, 1923*, 158; November, 1923*, 164; December, 1923, 163.

*Revised.

### IMPORTS AND EXPORTS OF CRUDE PETROLEUM—(Barrels)

(From Bureau of Foreign and Domestic Commerce)

| | November, 1923 Total | November, 1923 Daily Av. | December, 1923 Total | December, 1923 Daily Av. | Jan.-Dec., 1923 | Jan.-Dec., 1922 |
|---|---|---|---|---|---|---|
| *Imports: | | | | | | |
| From Mexico | 6,085,000 | 202,833 | 8,053,000 | 259,741 | 79,294,000 | 126,195,000 |
| From other coun. | | | 365,000 | 11,774 | 2,721,000 | 1,113,000 |
| Total | 6,085,000 | 202,833 | 8,417,000 | 271,515 | 82,015,000 | 127,308,000 |
| Exports, domestic crude oil: | | | | | | |
| To Canada | 662,000 | 22,067 | 989,000 | 31,903 | 8,825,000 | 8,197,000 |
| To other coun. | 702,000 | 23,400 | 1,080,000 | 34,839 | 5,250,000 | 1,798,000 |
| Foreign crude oil | 33,000 | 1,100 | 34,000 | 1,097 | 325,000 | 163,000 |
| Total | 1,397,000 | 46,567 | 2,103,000 | 67,839 | 17,400,000 | 10,163,000 |
| Excess of imports over exports | 4,688,000 | 156,266 | 6,314,000 | 203,676 | 64,615,000 | 117,145,000 |

*Includes some topped oil.

### CLASSIFICATION OF IMPORTS OF MEXICAN CRUDE PETROLEUM

(Reported to Geological Survey)

Percentage of Mexican Imports

Crude oil, lighter than 16°, Nov., 1923, 19; Dec., 1923, 28; Jan.-Dec., 1923, 11; Jan.-Dec. 1922, 68; 16° and heavier, Nov., 1923, 81; Dec., 1923, 72; Jan.-Dec., 1923, 89; Jan.-Dec. 1922, 32.

### INDICATED DELIVERIES TO CONSUMERS OF DOMESTIC AND IMPORTED CRUDE PETROLEUM—(Barrels)

(Based on formula of indicated deliveries equal production plus imports minus exports plus stocks at beginning of month minus stocks at end of month).

| | November, 1923* Total | November, 1923* Daily Av. | December, 1923 Total | December, 1923 Daily Av. | Jan.-Dec., 1923 | Jan.-Dec., 1922 |
|---|---|---|---|---|---|---|
| Domestic petroleum by fields of origin: | | | | | | |
| Appalachian | 2,384,000 | 76,133 | 2,225,000 | 71,774 | 27,564,000 | 27,194,000 |
| Lima-Indiana | 161,000 | 5,367 | 145,000 | 4,677 | 2,123,000 | 2,588,000 |
| Ill. & S. W. Ind. | 790,000 | 26,333 | 1,113,000 | 35,903 | 8,551,000 | 7,649,000 |
| Mid-Continent | 26,372,000 | 879,067 | 25,149,000 | 811,258 | 294,337,000 | 257,338,000 |
| Gulf Coast | 2,188,000 | 72,933 | 3,060,000 | 98,710 | 32,368,000 | 30,037,000 |
| Rocky Mountain | 2,304,000 | 76,800 | 2,612,000 | 84,258 | 29,931,000 | 29,497,000 |
| California | 21,643,000 | 721,433 | 23,160,000 | 747,097 | 250,942,000 | 124,116,000 |
| Other | | | | | | 13,000 |
| Deliv. and exports | 55,742,000 | 1,858,066 | 57,464,000 | 1,853,677 | 645,816,000 | 477,312,000 |
| Exports of domestic crude oil | 1,364,000 | 45,466 | 2,069,000 | 66,742 | 17,075,000 | 9,995,000 |
| Deliveries | 54,378,000 | 1,812,600 | 55,395,000 | 1,786,935 | 628,741,000 | 467,317,000 |
| Imported petro. | 6,034,000 | 201,133 | 7,835,000 | 252,742 | 81,998,000 | 124,816,000 |
| Deliveries of domestic and imported petroleum | 60,412,000 | 2,013,733 | 63,230,000 | 2,039,677 | 710,739,000 | 592,133,000 |

*Revised.

### NUMBER OF PRODUCING OIL WELLS COMPLETED*

Oct., 1923, 1,140; Nov., 1923, 1,007; Dec., 1923, 887; Jan.-Dec., 1923, 16,283; Jan.-Dec. 1922, 17,333.

*For States east of California, from The Oil and Gas Journal; for California, from the American Petroleum Institute.

### SHIPMENTS OF CALIFORNIA OIL THROUGH PANAMA CANAL TO EASTERN PORTS IN UNITED STATES

(From the Panama Canal Record)

(Compiled from declaration by masters of vessels reported in tons of 2,240 pounds)

Crude oil, long tons, Nov., 1923, 724,678; Dec., 1923, 742,725; Jan.-Dec., 1923*, 7,257,311; crude oil, barrels (approx.), Nov., 1923, 5,290,000; Dec., 1923, 5,422,000; Jan.-Dec., 1923*, 52,983,000; refined products, long tons, Nov., 1923, 29,400; Dec., 1923, 62,849; Jan.-Dec. 1923*, 459,328.

*In some of the manifests for the first few months of 1923 crude oil is not declared as such.

### MONTHLY SUMMARY FOR JANUARY-DECEMBER, 1923—(Revised)

| | Petroleum transported from producing properties: Total (thousands of bbls.) | Petroleum transported from producing properties: Daily average (bbls.) | Imports of crude petroleum (Includes topped oil): Total (thousands of bbls.) | Imports of crude petroleum (Includes topped oil): Daily average (bbls.) | Exports of crude petroleum: Total (thousands of bbls.) | Exports of crude petroleum: Daily average (bbls.) | Stocks*: Held on last day of mo. (thousands of bbls.) | Stocks*: No. days' sup. based on daily rate of consump. | Indicated deliveries to consumers of domestic and imported petroleum†: Total (thousands of bbls.) | Indicated deliveries to consumers of domestic and imported petroleum†: Daily average (bbls.) | No. of producing oil wells comp. dur. mo. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 51,941 | 1,675,516 | 7,307 | 235,710 | 762 | 24,581 | 258,059 | 148 | 53,902 | 1,738,774 | 1,388 |
| February | 48,120 | 1,718,929 | 6,199 | 221,393 | 651 | 24,321 | 260,026 | 141 | 51,651 | 1,845,750 | 1,248 |
| March | 56,461 | 1,821,323 | 8,058 | 259,935 | 1,038 | 33,161 | 263,310 | 136 | 60,207 | 1,942,161 | 1,521 |
| April | 58,528 | 1,950,933 | 6,617 | 220,567 | 1,511 | 50,367 | 268,926 | 139 | 58,019 | 1,933,967 | 1,671 |
| May | 61,858 | 1,995,419 | 5,995 | 193,387 | 1,324 | 42,710 | 277,785 | 149 | 57,669 | 1,860,290 | 1,830 |
| June | 62,340 | 2,078,000 | 5,996 | 199,867 | 2,598 | 86,600 | 288,406 | 157 | 55,117 | 1,837,233 | 1,733 |
| July | 65,273 | 2,105,581 | 6,915 | 223,065 | 1,547 | 49,903 | 298,172 | 151 | 60,875 | 1,963,710 | 1,465 |
| August | 65,793 | 2,122,355 | 7,580 | 244,516 | 1,542 | 49,742 | 305,342 | 146 | 64,661 | 2,085,839 | 1,278 |
| September | 64,686 | 2,156,200 | 6,021 | 200,700 | 1,592 | 53,067 | 312,668 | 152 | 61,789 | 2,059,633 | 1,140 |
| October | 66,971 | 2,160,355 | 6,826 | 220,161 | 1,315 | 42,419 | 321,972 | 158 | 63,177 | 2,037,968 | 1,007 |
| November | 64,829 | 2,160,967 | 6,085 | 202,833 | 1,397 | 46,567 | 331,077 | 164 | 60,412 | 2,013,733 | 887 |
| December | 58,892 | 1,899,742 | 8,417 | 271,515 | 2,103 | 67,839 | 333,053 | 163 | 63,230 | 2,039,677 | |
| Total | 725,702 | | 82,015 | | 17,400 | | | | 710,739 | | 16,283 |

*Domestic net pipe line and tank farm stocks east of California; producers', pipe line and tank farm stocks (but not refinery stocks) of crude oil, residuum, and tops in California plus stocks of imported crude petroleum and topped oil topped in Mexico held in the United States by importers elsewhere than at refineries. †Including losses.

# The Pure Oil Company have adopted The Sharples Process.

# The plant is to be installed at their Cabin Creek refinery in West Virginia.

# The pour point of Sharples-made bright stocks and de-waxed long residuum ranges from 25° F. down.

**MAX B. MILLER & CO. Inc.**
**501 FIFTH AVENUE**
**NEW YORK**

# Production Record of Burbank Field and Extensions

The Burbank Field in Osage County produced in three years and eight months, or from May, 1920, to the middle of January, 1924, a total of 55,790,345 bbls. The field in Kay County from January of last year to the middle of last month produced 6,983,798 bbls. The whole field is credited with a total production of 62,774,143 bbls. from 1,136 wells, of which 1,060 are in Osage County and 66 in Kay County. Burbank acreage included in this record of producing leases cost the operators $37,068,300, or an average of $2,465 per acre. The leases brought all the way from $500 up to $1,600,000.

The largest producer in the field is the Gypsy Oil Co. with 12,741,865 bbls. from 169 wells on 16 leases comprising 2,560 acres, which cost the company $9,412,200, or an average of $3,676 per acre. Its largest producing lease has been the northwest quarter of Section 24-27-5, on which 14 wells have produced 2,122,992 bbls. This lease cost $1,310,000. The company has four leases that have produced over 1,000,000 bbls. each and 12 leases that have averaged over 1,000,000 bbls. per lease, having given a combined yield of 12,313,207 bbls.

Following the Gypsy in order the Phillips Petroleum Co. and Skelly Oil Co. joint interest have had 9,596,080 bbls. production from 142 wells on 12 leases, or 1920 acres, costing $9,717,100 or an average of $5,061 per acre. Seven of the leases have given a combined production of 7,373,508 bbls., over 1,000,000 bbls. per lease.

The Carter Oil Co., which was fortunate in having purchased six Burbank leases when they were going at bargain prices, has had 6,071,476 bbls. from 129 wells on 12 leases, or 1,920 acres costing it only $2,699,400, or an average of $1,406 per acre. Only one of this company's leases came in the million-dollar class. One tract cost $500 and another $900. The $900 lease has produced 1,021,234 bbls. from 16 wells. The million-dollar lease had not reached the million-barrel mark up to mid-January, but it had only 10 wells drilled on it. The Carter Oil Co. is also a partner in several other valuable properties. The Carter Oil Co. and Tidal Oil Co. properties have produced 1,424,138 bbls. from 39 wells on four leases costing $505,100, and the Gardner Petroleum Co. and Carter Oil Co.'s bargain in the southeast quarter of Section 1-26-5, which cost Jim Gardner a modest $5,200, has produced 1,073,254 bbls. from 15 wells.

The Sinclair Oil & Gas Co. is in the 5,000,000-bbl. class, having had 5,450,167 bbls. from 133 wells on nine leases, or 1,440 acres costing $3,797,300 or $2,637 per acre.

The Prairie Oil & Gas Co. had produced 4,832,370 bbls. from 90 wells on seven leases, or 1,120 acres costing it $3,110,000, or an average of $2,777 per acre.

The discovery well was drilled by the Marland Oil Co. on the northeast quarter of Section 36-27-5, and this lease, which cost $2,000, had produced 1,285,996 bbls. up to January 16. It is now jointly owned by the Marland Oil Co. and the Roxana Petroleum Corp.

### 13 Leases Pass 1,000,000-Bbl. Mark

A perusal of the accompanying table will show 13 leases which have produced more than 1,000,000 bbls. each, but only one in the 2,000,000-bbls. class. The table will also show some leases which were bought as wildcat acreage for nominal amounts and which have yielded great returns to their owners. It will also bring to light some purchases which have turned out very badly.

This promises to be a great year for the Burbank Field. The field last year was subjected to a shutdown movement which greatly curtailed its potential out-

(Continued on Page 112)

**PRODUCTION RECORD OF THE BURBANK FIELD, OSAGE AND KAY COUNTIES, UP TO JANUARY 16**

| | No. Wells | Bonus Price | Total Prod. |
|---|---|---|---|
| Carter Oil Co.: | | | |
| NW 12-26-5, November, 1922 | 2 | $ 500,000 | 4,058 |
| SE 5-26-6, February, 1921 | 16 | 900 | 1,021,234 |
| SE 8-26-6, March, 1922 | 16 | 351,000 | 526,557 |
| NE 8-26-6, November, 1921 | 16 | 300,000 | 547,145 |
| NE 19-26-6, November, 1920 | 10 | 500 | 430,707 |
| NW 9-26-6, September, 1920 | 7 | 3,600 | 441,250 |
| SW 9-26-6, January, 1921 | 12 | 3,000 | 762,769 |
| SE 9-26-6, February, 1921 | 16 | 3,000 | 557,366 |
| NW 16-26-6, December, 1920 | 16 | 5,400 | 605,202 |
| SW 16-26-6, June, 1923 | 5 | 380,000 | 142,261 |
| SE 16-26-6, June, 1923 | 3 | 127,000 | 62,055 |
| NE 22-27-5, June, 1923 | 10 | 1,025,000 | 970,872 |
| Total | 129 | 2,699,400 | 6,071,476 |
| Carter Oil Co. and Tidal Oil Co.: | | | |
| NW 17-26-6, November, 1922 | 6 | 235,000 | 50,923 |
| SW 31-27-6, February, 1921 | 16 | 7,100 | 619,308 |
| SE 31-27-6, February, 1921 | 16 | 3,000 | 749,557 |
| NE 33-27-6, August, 1922 | 1 | 160,000 | 4,350 |
| Total | 39 | 405,100 | 1,424,138 |
| Comar Oil Co.: | | | |
| NE 2-26-5, November, 1922 | 7 | 410,000 | 136,658 |
| Cosden Oil & Gas Co.: | | | |
| NE 6-26-6, November, 1921 | 16 | 310,000 | 539,100 |
| NW 8-26-6, December, 1921 | 16 | 115,000 | 471,271 |
| SW 8-26-6, April, 1922 | 16 | 300,000 | 230,954 |
| NE 17-26-6, May, 1922 | 15 | 500,000 | 350,274 |
| SE 17-26-6, June, 1923 | 5 | 11,000 | 82,124 |
| Total | 68 | 1,236,000 | 1,673,723 |
| Devonian Oil Co.: | | | |
| SW 5-26-6, April, 1921 | 16 | 700 | 776,011 |
| Gypsy Oil Co.: | | | |
| NW 5-26-6, May, 1921 | 16 | 900 | 823,848 |
| NW 7-26-6, August, 1922 | 7 | 175,000 | 192,747 |
| NW 24-27-5, March, 1923 | 14 | 1,310,000 | 2,122,992 |
| SE 24-27-5, September, 1922 | 16 | 1,600,000 | 1,899,074 |
| NW 19-27-6, March, 1923 | 13 | 1,100,000 | 875,460 |
| SE 19-27-6, September, 1922 | 16 | 1,050,000 | 1,414,615 |
| SW 28-27-6, June, 1922 | 9 | 280,000 | 270,436 |
| NW 28-27-6, December, 1922 | 1 | 205,000 | 335 |
| SE 28-27-6, August, 1922 | 1 | 61,000 | 7,538 |
| NW 29-27-6, September, 1922 | 16 | 1,000,000 | 931,922 |
| NE 31-27-6, January, 1921 | 16 | 1,300 | 1,404,738 |
| NW 32-27-6, January, 1922 | 16 | 226,000 | 763,296 |
| SW 32-27-6, October, 1921 | 16 | 505,000 | 850,548 |
| NE 10-27-5, June, 1923 | 1 | 33,000 | 217,742 |
| SE 22-27-5, June, 1923 | 3 | 670,000 | 252,000 |
| NE 23-27-5, June, 1923 | 3 | 1,195,000 | 714,574 |
| Total | 169 | 9,412,200 | 12,741,865 |
| Kewanee Oil & Gas Co.: | | | |
| NE 4-26-6, March, 1922 | 10 | 205,000 | 320,112 |
| SE 7-26-6, November, 1922 | 2 | 275,000 | 10,780 |
| Total | 12 | 580,000 | 330,892 |
| Laurel Oil & Gas Co.: | | | |
| NW 1-26-5, May, 1921 | 16 | 3,000 | 669,723 |
| Gardner Petroleum Co. and Carter Oil Co.: | | | |
| SE 1-26-5, January, 1921 | 15 | 5,200 | 1,073,254 |
| Gardner Petroleum Co. and Marland Oil Co.: | | | |
| NE 12-26-5, September, 1922 | 5 | 325,000 | 108,318 |
| Lorraine Petroleum Co.: | | | |
| SE 6-26-6, February, 1922 | 15 | 100,000 | 361,834 |
| Midland Oil Co.: | | | |
| NW 15-26-6, May, 1922 | 5 | 61,000 | 105,054 |
| Waite Phillips Co. and Delmar Oil Co.: | | | |
| SE 10-27-5, June, 1923 | 3 | 43,000 | 616,721 |
| Mid-Kansas Oil & Gas Co.: | | | |
| SE 35-27-5, October, 1922 | 10 | 665,000 | 310,796 |
| SE 33-27-6, April, 1922 | 4 | 115,000 | 81,839 |
| SE 15-27-5, June, 1923 | 7 | 1,325,000 | 692,967 |
| Total | 21 | 2,105,000 | 1,085,601 |
| Phillips Petroleum Co.: | | | |
| NE 35-27-5, October, 1922 | 9 | 495,000 | 226,915 |
| NW 23-27-5, June, 1923 | 8 | 1,005,000 | 373,149 |
| Total | 17 | 1,500,000 | 600,064 |
| Phillips Petroleum and Skelly Oil Co.: | | | |
| NE 7-26-6, May, 1922 | 7 | 155,000 | 170,247 |
| SE 23-27-5, April, 1923 | 11 | 1,101,000 | 806,462 |
| NE 24-27-5, March, 1923 | 12 | 1,245,000 | 1,142,196 |
| SW 24-27-5, October, 1922 | 16 | 1,005,000 | 1,847,791 |
| NE 25-27-5, June, 1922 | 15 | 1,335,000 | 577,692 |
| NW 25-27-5, June, 1922 | 14 | 1,160,000 | 678,314 |
| SW 25-27-5, February, 1922 | 5 | 6,100 | 559,372 |
| SE 25-27-5, August, 1921 | 14 | 57,000 | 807,912 |
| SE 26-27-5, November, 1922 | 5 | 805,000 | 251,689 |
| SW 19-27-6, September, 1922 | 16 | 1,585,000 | 1,531,529 |
| NE 29-27-6, September, 1922 | 11 | 600,000 | 538,197 |
| NW 30-27-6, April, 1922 | 16 | 663,000 | 664,675 |
| Total | 142 | 9,717,100 | 9,596,080 |
| Peters & Oliphant: | | | |
| NW 17-27-6, October, 1923 | 1 | 82,000 | 17,924 |
| Prairie Oil & Gas Co.: | | | |
| NW 4-26-6, October, 1921 | 16 | 360,000 | 963,706 |
| NW 10-26-6, October, 1921 | 5 | 200,000 | 346,824 |
| SW 10-26-6, December, 1921 | 5 | 200,000 | 231,725 |
| NE 30-27-6, March, 1922 | 16 | 700,000 | 810,950 |
| SE 30-27-6, December, 1921 | 16 | 250,000 | 645,859 |
| SE 32-27-6, March, 1922 | 16 | 800,000 | 1,154,520 |
| SW 33-27-6, April, 1922 | 16 | 600,000 | 663,766 |
| Total | 90 | 3,110,000 | 4,832,370 |
| Producers & Refiners Corp. and Marland Oil Co.: | | | |
| NE 16-26-6, January, 1922 | 12 | 136,000 | 256,866 |
| Producers & Refiners Corp.: | | | |
| NW 31-27-6, November, 1920 | 16 | 2,100 | 1,292,801 |
| Roxana Pet. Corp.: | | | |
| SW 4-26-6, February, 1921 | 14 | 251,000 | 962,592 |
| Roxana Pet. and Marland Oil Co.: | | | |
| NW 6-26-6, April, 1921 | 16 | 6,600 | 427,817 |
| NE 36-27-5, May, 1920 | 14 | 2,000 | 1,286,966 |
| SE 36-27-5, December, 1920 | 13 | 7,000 | 521,015 |
| Total | 43 | 15,600 | 2,234,798 |
| Simons, Moore and others: | | | |
| SW 1-26-5, February, 1922 | 13 | 3,100 | 292,429 |
| NE 5-26-6, April, 1921 | 16 | 800 | 1,098,332 |
| Total | 29 | 3,900 | 1,390,761 |
| Sinclair Oil & Gas: | | | |
| NE 1-26-5, May, 1921 | 16 | 5,800 | 697,998 |
| NE 15-27-5, June, 1923 | 6 | 800,000 | 442,764 |
| SW 36-27-5, October, 1921 | 17 | 1,500 | 796,189 |
| NE 19-27-6, March, 1923 | 14 | 615,000 | 321,475 |
| SW 20-27-6, March, 1923 | 16 | 415,000 | 340,812 |
| SW 29-27-6, March, 1922 | 16 | 650,000 | 799,428 |
| SE 29-27-6, June, 1922 | 16 | 410,000 | 786,534 |
| NE 32-27-6, March, 1922 | 16 | 600,000 | 933,669 |
| NW 33-27-6, June, 1922 | 16 | 300,000 | 421,307 |
| Total | 133 | 3,797,300 | 5,450,167 |
| Skelly Oil Co.: | | | |
| SW 23-27-5, June, 1923 | 5 | 740,000 | 80,195 |
| Tidal Osage Oil Co.: | | | |
| SE 4-26-6, October, 1921 | 11 | 95,000 | 422,155 |
| SW 6-26-6, February, 1921 | 14 | 206,000 | 487,120 |
| Total | 25 | 301,000 | 909,275 |
| Tidal Osage and Carter Oil Co.: | | | |
| SW 20-27-6, August, 1921 | 16 | 26,000 | 843,297 |
| Twin State Oil Co.: | | | |
| NW 36-27-5, February, 1921 | 8 | 800 | 148,495 |
| Total | 1,070 | $37,068,300 | 55,790,345 |
| **Burbank Extension, Kay County** | | | |
| Comar Oil Co.: | | | |
| S½ SW ¼ 4-27-5 | 1 | ..... | 2,057 |
| N½ SW¼ 10-27-5, May, 1923 | 3 | ..... | 664,138 |
| N½ SW 15-27-5, April, 1923 | 2 | ..... | 606,867 |
| S½ NE 21-27-5, April, 1923 | 1 | ..... | 17,293 |
| Total | 7 | ..... | 1,292,375 |
| Sapulpa Refining Co.: | | | |
| SW 15-27-5, January, 1923 | 6 | ..... | 520,906 |
| Mid-Kansas Oil & Gas Co.: | | | |
| NE 21-27-5, March, 1923 | 2 | ..... | 33,551 |
| N½ SE 9-27-5, May, 1923 | 2 | ..... | 424,766 |
| Total | 4 | ..... | 458,317 |
| Phillips Pet. and Skelly Oil Co.: | | | |
| SE 16-27-5 | 2 | ..... | 36,496 |
| W½ NW 22-27-5, March, 1923 | 4 | ..... | 179,620 |
| E½ NW 22-27-5, May, 1923 | 6 | ..... | 601,559 |
| Total | 12 | ..... | 817,677 |
| Twin State Oil Co.: | | | |
| NW 15-27-5, April, 1923 | 5 | ..... | 547,942 |
| Carter Oil Co.: | | | |
| S½ SW 10-27-5, June, 1923 | 3 | ..... | 834,360 |
| Cosden Oil & Gas Co.: | | | |
| NW 10-27-5, May, 1923 | 3 | ..... | 856,696 |
| Gypsy Oil Co.: | | | |
| SE 4-27-5, May, 1923 | 4 | ..... | 292,650 |
| W½ 16-27-5, May, 1923 | 2 | ..... | 64,316 |
| Total | 6 | ..... | 356,972 |
| Phillips Petroleum Co.: | | | |
| N½ NW NE 9-27-5 | 8 | ..... | 356,700 |
| S½ SE 9-27-5, May, 1923 | 3 | ..... | 587,007 |
| N½ NE 16-27-5 | 1 | ..... | 164,612 |
| Total | 12 | ..... | 1,102,319 |
| Sinclair Oil & Gas Co.: | | | |
| SW 9-27-5, May, 1923 | 2 | ..... | 69,118 |
| George S. Bole: | | | |
| E½ NW 4-27-5, August, 1923 | 1 | ..... | 122,890 |
| Laurel Oil & Gas Co.: | | | |
| SW 4-27-5, August, 1923 | 1 | ..... | 5,600 |
| Prairie Oil & Gas Co.: | | | |
| S½ NW 9-27-5, January | 1 | ..... | 8,707 |
| Pure Oil Co.: | | | |
| E½ NE 16-27-5, August, 1923 | 2 | ..... | 94,962 |
| Roxana Petroleum Corp.: | | | |
| NE 4-27-5, August, 1923 | 1 | ..... | 107,261 |
| The Texas Co.: | | | |
| SW 3-27-5, October, 1923 | 1 | ..... | 99,660 |
| Total Kay County | 66 | ..... | 6,983,798 |
| Grand total Burbank Field | 1,136 | ..... | 62,774,143 |

# Airoil Burners

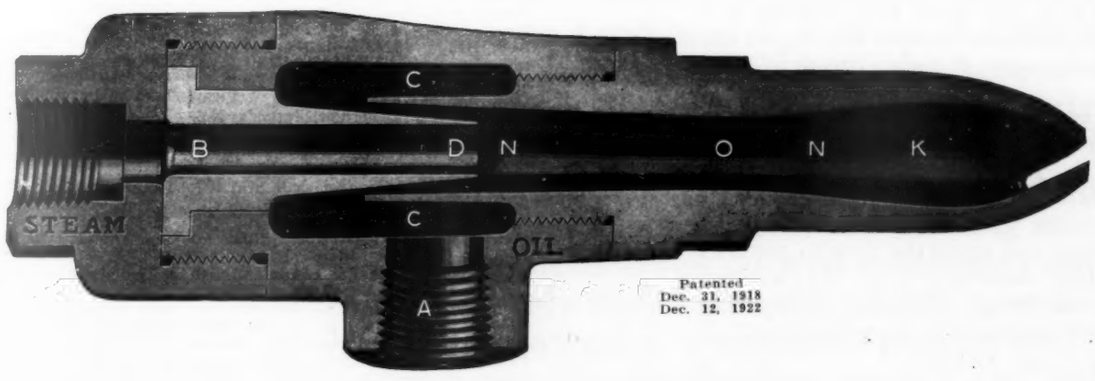
## —are Good Burners—

### —because

1. They use any grade of Fuel Oil.
2. They will not Flare-back or Back-fire.
3. They eliminate Carbon deposits and Smoke.
4. They use less steam or compressed air than other burners.
5. They burn as steady as a gas flame.
6. They contain no needle valves, which are likely to clog-up, or drip.
7. They are Fool-Proof.
8. They operate with an Oil Pressure of only 30 lbs. and an Oil Temperature of less than 150 Degrees F.
9. They require no attention in service.
—and

BECAUSE THEY ARE ECONOMICAL AND EFFICIENT.

NATIONAL AIROIL BURNER

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Dec. 31, 1918
Dec. 12, 1922

# National Airoil Burner Co.

*"Oil Burners and Oil Burning Equipment"*

**902 Thompson St., Philadelphia, Pa.**

**Our Booklet entitled "OIL BURNING IN POWER PLANTS"**

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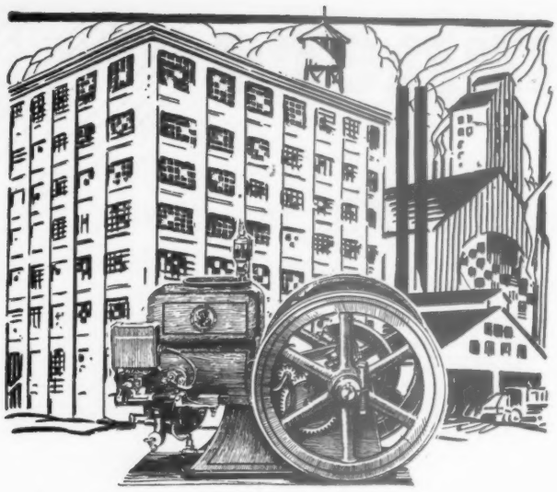

# Many a Big Contract Job Earns a Profit Because

The HERCULES Engine comes through! It handles such a whale of a lot of work so readily—it puts such a little tax on the pay sheet (because almost anybody can run it right)—and it delivers such power on so small an outlay—

But above all and beyond all, you can count on one sure thing with a Hercules on your work.

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Hundreds on hundreds of other men in your line of work will testify to the Hercules Engine's everyday value to them as a profit-earner.

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**THE HERCULES CORPORATION**
**Engine Division Dept. E** **Evansville, Indiana**

**HERCULES ENGINES**

## NORTH TEXAS FIELDS

(Continued from Page 44)

Hanes and others' No. 2 Watkins, drilling in rock at 1,615 feet; Nabor and others' No. 1 Parker, drilling at 425 feet; Scott and others' No. 2 Chilson, drilling in mud at 1,045 feet; Perkins and others' No. 1 Rhodes, drilling at 1,155 feet, Taylor and others' No. 1 Henderson, drilling in brown shale at 1,245 feet; Texhoma Oil & Refining Co.'s No. 3 Hamilton, drilling at 1,480 feet.

**Wilbarger County**

Drilling—Apple and others' No. 1 Ancell, drilling at 200 feet; Dennis and others' No. 1 Beckett, drilling at 635 feet; Robinson and others' No. 1 McCaleb, 6⅝-inch casing, froze at 1,285 feet.

**Archer County**

Completions—The Texas Co.'s No. 1 Parrish, 400 bbls. at 1,590 feet; Brannon and others' No. 1 Wilson, dry at 1,623 feet; Burton and others' No. 1 Wilson, Block 44, dry at 1,850 feet; Dale and others' No. 2 Wilson 500 bbls. at 1,600 feet; same company's No. 4 Wilson, 500 bbls at 1,600 feet; same company's No. 2-B Wilson, 385 bbls. at 1,595 feet; same company's No. 4-C Wilson, 100 bbls. at 1,605 feet; same company's No. 5-C Wilson, 125 bbls. at 1,605 feet; Gatewood and others' No. 1 Boone, dry at 2,500 feet; Gwynn and others' No. 7 Mrs. Carter, 75 bbls. at 1,580 feet; Kimmell and others' No. 4 K. & K., 80 bbls. at 955 feet; Panhandle Refining Co.'s No. 1 Parrish, 220 bbls. at 1,600 feet.

Drilling—Anderson and others' No. 2 Wilson, drilling in hard rock at 1,500 feet; Bohler and others' No. 2 Wilson, drilling at 680 feet; Birdwell and others' No. 2 Wilson, 1,000 feet of oil in the hole and drilling top of an oil sand at 1,605 feet; Camp Oil & Gas Co.'s No. 6 Wilmot, drilling at 1,285 feet; Dale and others' No. 5 Wilson, ratholing at 1,507 feet; No. 7-C and 8-C Wilson, drilling at 700 feet; Darr and others' No. 1 Ferguson, fishing job at 983 feet; Empire Gas & Fuel Co.'s No. 2-B Wilson, drilling at 1,550 feet; No. 3-B Wilson, drilling an oil sand with 800 feet of oil in the hole at 1,600 feet; No. 1-C Wilson, drilling in shale at 1,440 feet; Featherstone and others' No. 4-C Wilson, bailing and testing an oil sand at 1,600 feet; No. 10-C Wilson, drilling at 1,505 feet; Gould and others' No. 2 White, drilling at 1,630 feet; Gwynn and others' No. 8 Mrs. Carter, drilling in rock at 1,290 feet; No. 1-B Wilson, drilling in shale at 1,420 feet; Hammond and others' No. 1 Vothberger, drilling in blue shale at 1,380 feet; Hardeyeste and others' No. 1 Parrish, shut down on top of an oil sand at 1,607 feet; Henley and others' No. 1-D Wilson, shut down on top of an oil sand at 1,600 feet; Humble Oil & Refining Co.'s No. 1 Nichols, drilling at 1,650 feet; Kentucky Oil Corporation's No. 1-B Wilson, drilling at 1,300 feet; Lanning and others' No. 1 Parrish, drilling in mud at 320 feet; Larkin and others No. 1 Nelson, drilling in shale at 1,465 feet; Lynch and others' No. 1 Birdwell, recementing at 1,325 feet; Morgan Oil Co.'s No. 1 Mrs. Turbeville, drilling in shale at 1,225 feet; Morris and others' No. 2 Wilson, cementing casing at 1,670 feet; Moore and others' No. 1 Wilson, drilling at 1,645 feet; Pace Oil Co.'s No. 1 Ford, drilling in lime at 820 feet; Petroleum Producers Association's No. 1 Perkins, drilling in shale at 1,555 feet; Pyles and others' No. 1 White, testing an oil sand at 1,590 feet; Shamrock Oil Co.'s No. 1 Harbison, drilling at 1,140 feet; Sixty-Six Oil Co.'s No. 8-B Wilson, drilling at 1,385 feet; Staley and others' No. 1-B Wilson, drilling in shale at 1,285 feet; Swastika Oil Co.'s No. 1-C Richardson, drilling at 1,200 feet; Tackett and others' No. 2 Mrs. Carter, drilling in hard rock at 1,420 feet; Texhoma Oil & Refining Co.'s No. 8 Mrs. Carter, shot with 10 quarts a sand at 1,585 feet; Thomas and others' No. 1 Ford, drilling without any showing at 1,810 feet; United Royalties Co.'s No. 1 White, drilling in brown shale at 985 feet; Verschoyle and others' No. 1 Wilson, ratholing at 1,578 feet; No. 1-B Wilson, ratholing at 1,585 feet; Dr. Wallace's No. 12 K. & K., running 6⅝-inch casing at 1,740 feet; Wall Duke Oil Co.'s No. 1 Garvey, drilling at 945 feet; The Texas Co.'s No. 2 Parrish, drilling a hard sand at 85 feet; No. 5 Parrish, drilling in a hard sand at 1,300 feet; no 3 and 4 Parrish are rigs.

**Young County**

Drilling—Associated Oil Co.'s No. 1 Hughes, drilling in rock at 750 feet; Calmo Oil Co.'s No. 1 Henson, shut down with hole full of water at 1,080 feet; Harron and others' No. 1 Vick, drilling at 540 feet; McGuire and others' No. 1 Carter, fishing for casing at 1,875 feet; McKenzie and others' No. 1 Logan, shut down with a show of oil from a sand at 1,248 feet; Mid-Kansas Oil & Gas Co.'s No. 1 Gibson, drilling at 1,265 feet; No. 1 Moran, fishing for casing at 1,800 feet; Mutual Oil Co.'s No. 3 Glidwell, spudding; North American Refining Co.'s No. 1-A Scott, fishing at 3,800 feet; Peter and others' No. 1 Boley, drilling in shale at 1,145 feet; Pomona Valley Oil Co.'s No. 1 Hughes, trying to shut off water at 2,700 feet; Seaboard Oil & Gas Co.'s No. 5-A Hughes, drilling in rock at 1,725 feet; No. 6-A Hughes, drilling in shale at 1,675 feet; Sinclair Oil & Gas Co.'s No. 3 Moren, drilling in brown shale at 1,525 feet; Whitehead and others' No. 1 Graham, drilling at 2,470 feet.

**Stephens County**

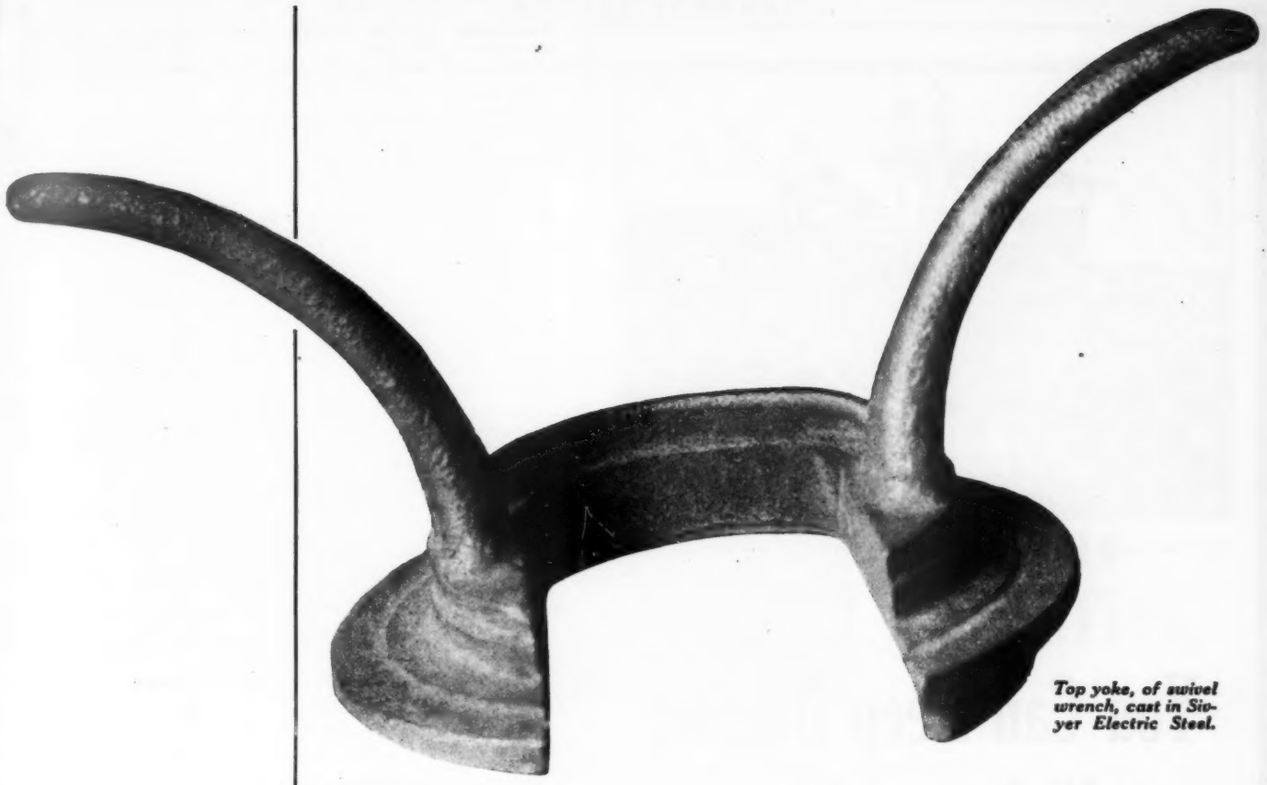
Completions—Texas & Pacific Coal & Oil Co.'s No. 1 Rogers, 510 bbls. at 3,240 feet; Humble Oil & Refining Co.'s No. 6 Jones, 365 bbls. at 3,200 feet; Texas Pacific Coal & Oil Co.'s No. 6 Veale, 25 bbls. at 3,150 feet.

Drilling — Ewing and others' No. 1 Martin, drilling in hard black lime with a show of oil at 3,280 feet; Mid-Kansas Oil & Gas Co.'s No. 12 Hill, drilling at 1,375 feet; No. 3 Richardson, drilling at 2,055 feet; No. 3 Williams, running 12½-inch casing at 1,155 feet; Pender Production Co.'s No. 2 Keel, drilling at 555 feet; Pierce and others' No. 1 Cruddington, cleaning out at 750 feet; Prairie Oil & Gas Co.'s No. 15 Atkins, drilling at 1,625 feet; Rochelle and others' No. 1-A Sweeney, fishing for casing at 1,400 feet; Texas Consolidated Oil Co.'s No. 5 Martin, drilling by tools at 4,025 feet; Curry Pool Oil Co.'s No. 1 Thompson drilling in shale at 2,800 feet; Empire Gas & Fuel Co.'s No. 6 Wallace, underreaming 8-inch casing at 1,200 feet; Haile and others' No. 1-B Jones, drilling at 2,700 feet; Magnolia Petroleum Co.'s No. 4 Brown, drilling with a hole full of water at 3,615 feet; Quakins Petroleum Co.'s No. 1 Bruce, drilling in shale at 1,265 feet; Rosser and others' No. 5 Jones, drilling at 2,680 feet; Scott and others' No. 2 Davis, drilling with a hole full of water at 2,735 feet; Swensondale Oil Co.'s No. 1 Elliott, drilling in a hard shale formation at 3,055 feet; No. 1 Herrington, fishing for tools at 2,630 feet; Texas Co.'s No. 6 Heathley, drilling at 620 feet; No. 38-A Parks, drilling in shale at 635 feet.

**Eastland County**

Completions—Gordon Petroleum Co.'s No. 1 Ray, 10 bbls. at 3,600 feet; Mexia Star Oil Co.'s No. 1 Judd, dry at 2,300 feet.

Drilling—Corzilius and others' No. 1 Blackwell, drilling with a spudder at 905 feet; Grisham and others' No. 1 Holloway, drilling at 425 feet; Humble Oil & Refining Co.'s No. 5 Merril, drilling at 700 feet; Lone Star Gas Co.'s No. 2-A Hogg, drilling at 2,075 feet; McFall and others' No. 1 Ross, drilling in shale at 1,200 feet; McLester and others' No. 2 Westmoreland, have three strings of tools in the hole and may skid the rig, depth 2,850 feet; Mook and others' No. 2 Sibley, drilling at 900 feet; Post Duke Oil Co.'s No. 3 Abernathy, drilling at 2,000 feet; Rosenfield and others' No. 2 Gilbert, show of oil and will shoot at 490 feet; the States Oil Corporation's No. 4 Platt, drilling in lime at 3,400 feet; The Texas Co.'s No. 5 Hightower, drilling at 200 feet; Dougherty and others' No. 1 Johnson, at 2,225 feet; Stovar and others' No. 1 Ray, drilling in shale at 2,780 feet; Texas



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# Where Iron Breaks and Forgings are Impractical

THE swivel wrench, to which the top yoke shown above belongs, is winning the favorable attention of many buyers. Its advantages are not confined to its effective design, but include the fact that the top yoke is cast in Sivyer Electric Steel. If it were made of gray iron, it would have a tendency to break under strain. If it were made of malleable iron, it would have a tendency to bend, and if it broke it could not be welded. It is impractical to forge because of its design. As cast in Sivyer Electric Steel it is extraordinarily elastic and strong—and if it should ever break, it could be welded. These and many other advantages of Sivyer Electric Steel are leading more and more manufacturers of oil-well machinery and tools to use it where they formerly used iron or forgings. Its interior integrity, trueness to pattern and honest surfaces provide the flawless quality and unfailing strength that the men in the field demand.

*Sivyer castings can be forged and welded*

SIVYER (S) CASTINGS

DEPENDABLE

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During the last seven years, many manufacturers who were having difficulty with forged parts—or with ordinary steel castings—have come to us for a solution of their difficulties.

Very often, of course, the manufacturer's problems arise from the shortcomings of ordinary cast steel. When certain sections of a design vary sharply in thickness, it is difficult to cast them in ordinary steel. Open hearth practice does not permit the high temperature necessary for pouring extremely thin sections or intricate design.

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If you are having trouble with parts that in the past have been hammer forged, or cast in ordinary steel, send us your blue prints together with a statement of your difficulties. We will be glad to study the problems involved and recommend possible solutions, without obligation on your part.

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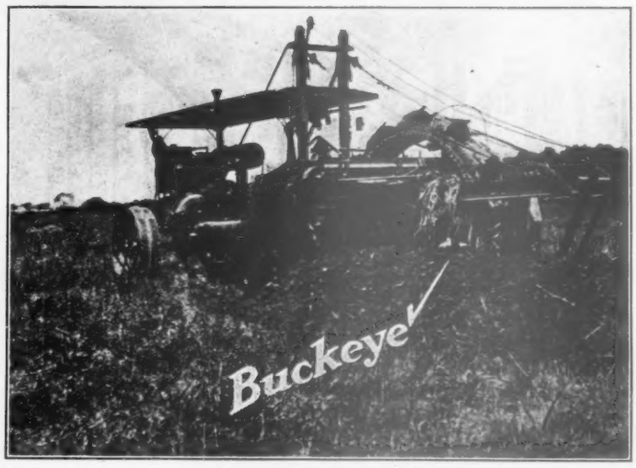
SIVYER STEEL CASTING COMPANY, MILWAUKEE

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# You Can Keep Digging Night and Day

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Development Co.'s No. 1 Lewis, fishing for tools at 3,850 feet.

### Wildcats

Shackelford County: Completions—Seymour and others' No. 2 Kendrick, dry at 860 feet; Tannehill and others' No. 1 Moberly, 10 bbls. at 1,010 feet; same company's No. 1 Myer, dry at 1,230 feet; No. 2 Myer, 5 bbls. at 1,240 feet.

Drilling—Brown and Co.'s No. 1 Moberly, spudding; Donnelly and others' No. 1 Brooks, drilling at 1,250 feet; Humble Oil & Refining Co.'s No. 1-B Lynch, drilling in white lime with 2,000 feet of oil in the hole at 3,510 feet; Landreth Production Co.'s No. 2 Lynch, plugging at 3,388 feet; No. 11 Poindexter, drilling at 1,380 feet; No. 14 Poindexter, set 5-inch casing and cleaning out at 3,290 feet; Simms Oil Co.'s No. 1 Elliott, drilling at 385 feet.

Palo Pinto County: Drilling—Pender Production Co.'s No. 1 Slemmons, fishing for tools at 4,100 feet; T. & P. Coal & Oil Co.'s No. 1 Robinson, drilling by tools at 3,580 feet; No. 144 Stuart, swedging casing at 1,695 feet; Harris and others' No. 1 Weldon, rigging up to drill deeper at 2,650 feet; Hubert and others' No. 1 Porter, drilling in mud at 300 feet; Hess and others' No. 1 Cropper, drilling in shale at 1,800 feet; Moore & Snebold's No. 1 Pruitt, drilling in shale at 2,640 feet; Scott and others' No. 1 River Bed, fishing for lost tools at 3,713 feet; Singleton and others' No. 1 Holt, drilling in sand showing rainbows at 3,715 feet; Skelly Oil Co.'s No. 1 Carter, drilling at 300 feet.

Callahan County: Completions—Dutton and others' No. 2 Cathey, 50 bbls. at 1,660 feet.

Drilling — Hickey and others' No. 2 Finley, fishing for tools at 2,340 feet; No. 1 Cathey, drilling at 105 feet; Moore and others' No. 4 Acker, drilling in shale at 1,435 feet; Shackelford and others' No. 1 Allen, drilling in blue shale at 1,605 feet; Slick and others' No. 1 Barr, fishing for an underreamer at 1,600 feet.

Brown County: Completions — The Pennant Oil & Gas Co.'s No. 1 Strickland, dry at 3,250 feet.

Mitchell County: Drilling—Carey and others' No. 1 Morrison, spudding; Kelsay and others' No. 1 Badgett, running tubing at 3,120 feet; California Co.'s No. 1 Morrison, drilling at 4,045 feet; No. 2 Morrison, drilling at 1,300 feet; No. 1 Butler, drilling at 1,390 feet; No. 1 Miller, drilling in blue shale at 1,755 feet.

### Clay County Operations

Clay County: Completions—Nix and others' No. 1 Hull, dry at 1,800 feet.

Drilling—Crude Oil Production Co.'s No. 1 Kinder, testing a sand that does not look good at 1,045 feet; Gulf Production Co.'s No. 1-A Boddy, fishing for four joints of casing at 2,790 feet; No. 3 Worsham, underreaming 8¼-inch casing at 1,770 feet; Hamilton and others' No. 1 Harper, drilling at 540 feet; Lone Star Gas Co.'s No. 1 Martin, will set 6⅝-inch casing and test a broken oil sand at 1,779 feet; No. 2 Withers, drilling in shale at 1,750 feet; Nebraska Oil & Gas Co.'s No. 1 Myers, shut down with a show of oil at 3,545 feet; Scaling Oil Corporation's No. 1 Scaling, drilling at 1,255 feet.

Cooke County: Drilling—Big Indian Oil Co.'s No. 1 Davis, drilling in rock at 3,055 feet.

Montague County: Drilling — The Texas Co.'s No. 1 Rucktashel, drilling in blue shale in a second hole at 570 feet; Amerada Oil Corp.'s No. 1-A Beasley, drilling in blue shale at 2,160 feet; Gulf Production Co.'s No. 1 Benton, drilling at 3,370 feet; Mascho Oil Co.'s No. 1 Howard, drilling in soft rock at 2,200 feet; Texon Oil Co.'s No. 1-A Crenshaw, drilling in soft rock at 2,555 feet.

Carson County: Completions—Humphreys Oil Co.'s No. 1 Sandford, 100,000,000 feet of gas at 2,539 feet.

Drilling—The Texas Co.'s No. 3 Burnett, bailing and will set casing at 1,880 feet; Gulf Production Co.'s No. 3-A Burnett, drilling up pipe at 3,145 feet; Silk and others' No. 3 Burnett, fishing for a drill stem at 2,258 feet.

Hutchinson County: Drilling—Humphreys Oil Co.'s No. 1 Johnson, fishing for tools at 2,585 feet; Montgomery and others' No. 1 Johnson, underreaming 10-inch casing at 1,910 feet; McGee and others' No. 1 Smith Capers, cleaning out at 3,175 feet; Producers & Refiners Corp.'s No. 1-B Bivens, topped a hard lime and drilling at 2,045 feet.

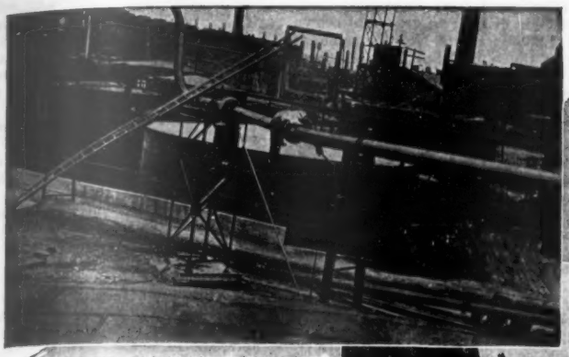
### PRODUCTION REPORT

**Week Ending January 21, 1924**

| | |
|---|---|
| **Burkburnett** | |
| American Refining Co. | 215 |
| Barkley & Meadows | 1,645 |
| Humble Oil & Ref. Co. | 620 |
| Gulf Production Co. | 1,600 |
| Magnolia Petroleum Co. | 3,535 |
| Middle States Oil Co. | 150 |
| McMahon Oil Co. | 500 |
| Panhandle Refining Co. | 425 |
| Sinclair Oil & Gas Co. | 65 |
| The Texas Co. | 485 |
| Texhoma Oil & Ref. Co. | 555 |
| Miscellaneous | 10,770 |
| Total | 20,735 |
| **Electra** | |
| Empire Gas & Fuel Co. | 1,870 |
| Humble Oil & Ref. Co. | 125 |
| Griswold Oil Co. | 380 |
| Gulf Production Co. | 910 |
| Magnolia Pet. Co. | 4,635 |
| Middle States Oil Co. | 170 |
| McMahon Oil Co. | 235 |
| The Texas Co. | 4,772 |
| Texhoma Oil & Ref. Co. | 3,196 |
| Miscellaneous | 4,475 |
| Total | 19,184 |
| **Iowa Park, Etc.** | |
| American Ref. Co. | 35 |
| Griswold Oil Co. | 30 |
| Gulf Production Co. | 45 |
| Middle States Oil Co. | 15 |
| Texhoma Oil & Ref. Co. | 140 |
| Miscellaneous | 2,040 |
| Archer County— | |
| American Refining Co. | 225 |
| Griswold Oil Co. | 790 |
| Gulf Production Co. | 280 |
| Humble Oil & Ref. Co. | 60 |
| The Texas Co. | 740 |
| Texhoma Oil & Ref. Co. | 2,870 |
| Miscellaneous | 16,465 |
| Petrolia— | |
| Gulf Production Co. | 45 |
| Magnolia Petroleum Co. | 55 |
| The Texas Co. | 90 |
| Miscellaneous | 130 |
| Total | 23,556 |
| **Stephens County** | |
| Empire Gas & Fuel Co. | 100 |
| Gulf Production Co. | 1,550 |
| Humble Oil & Ref. Co. | 1,945 |
| Magnolia Petroleum Co. | 975 |
| Mid-Kansas Oil & Gas Co. | 1,970 |
| Prairie Oil & Gas Co. | 1,105 |
| Sinclair Oil Co. | 195 |
| The Sun Co. | 630 |
| The Texas Co. | 3,575 |
| T. & P. Coal & Oil Co. | 1,655 |
| Miscellaneous | 8,220 |
| Total | 20,710 |
| **Eastland County** | |
| Gulf Production Co. | 580 |
| Humble Oil & Ref. Co. | 135 |
| Magnolia Pet. Co. | 545 |
| Panhandle Refining Co. | 490 |
| Prairie Oil & Gas Co. | 920 |
| Sinclair Oil Co. | 500 |
| The Texas Co. | 270 |
| T. & P. Coal & Oil Co. | 1,030 |
| Miscellaneous | 2,960 |
| Total | 7,430 |
| **Other Fields** | |
| Strawn— | |
| T. & P. Coal & Oil Co. | 430 |
| Miscellaneous | 635 |
| Moran— | |
| Empire Gas & Fuel Co. | 175 |
| Humble Oil & Ref. Co. | 535 |
| The Texas Co. | 305 |
| Texhoma Oil & Ref. Co. | 315 |
| Miscellaneous | 3,480 |
| Coleman County— | |
| Miscellaneous | 140 |
| Brown County— | |
| Miscellaneous | 350 |
| Comanche-Eastland— | |
| Humble Oil & Ref. Co. | 435 |
| Magnolia Pet. Co. | 1,190 |
| Prairie Oil & Gas Co. | 365 |
| Sinclair Oil & Gas Co. | 70 |
| The Texas Co. | 210 |
| T. & P. Coal & Oil Co. | 290 |
| Miscellaneous | 5,320 |
| Young County— | |
| Gulf Production Co. | 120 |
| North American Refining Co. | 110 |
| Sinclair Oil & Gas Co. | 535 |
| Oklahoma Pet. & Gas Co. | 65 |
| Panhandle Refining Co. | 370 |
| The Texas Co. | 120 |
| Miscellaneous | 9,455 |
| Mitchell County | 630 |
| Reagan County | 60 |
| Jack County | 95 |
| Total | 18,735 |
| Total this week | 110,455 |
| Total last week | 109,467 |
| Gain | 1,988 |

### PENNSYLVANIA, NOT PERSIAN

In the report of the discussion before the British Institute of Petroleum Technologists on lubrication the London Oil and Color Trades Journal says an error of transcription in the remarks of W. Lee put Persian oil first. "Persian" in each case should have read "Pennsylvanian."



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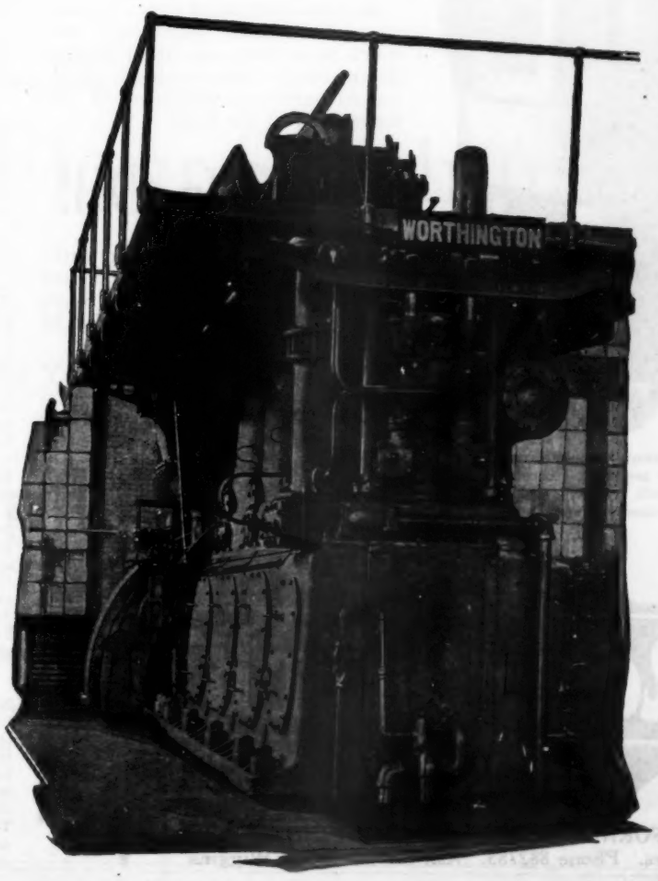


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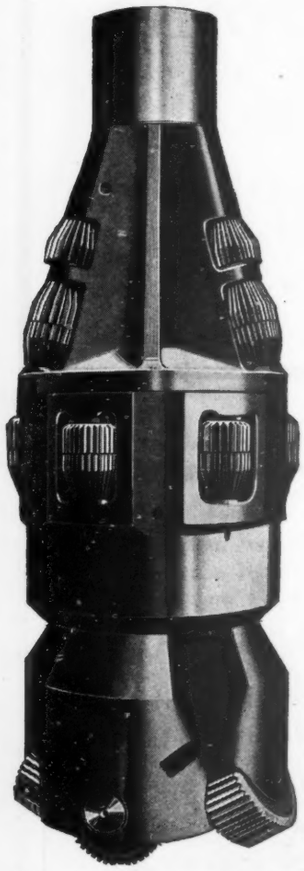
*—a matter of using efficient equipment*



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## MEXICAN FIELDS

(Continued from Page 52)

Lot 1, 4-C, is drilling in gray and brown lime at 1,938 feet; its No. 40, same, is drilling in the San Felipe at 1,136 feet; its No. 41, same, has cemented 10-inch in the same formation at 1,256 feet; its No. 42, same, is drilling in the San Felipe at 1,605 feet; its No. 44, same, is drilling in limestone at 1,780 feet. Mexican Sinclair Petroleum Corp.'s No. 20, Lot 3, has cemented 8-inch in the San Felipe at 1,170 feet; its No. 40, Lot 3, is drilling in blue shale at 700 feet. Over in Lot 1. 4-B, its No. 8 is drilling in the San Felipe with a showing of oil at 1,618 feet; its No. 9, same, is drilling in a similar formation with a 100-bbl. showing at 1,770 feet; its No. 10 has cemented 10-inch in the same formation at 1,206 feet; its No. 11 is drilling in the Tamasopa at 1,856 feet; its No. 12 is drilling in the San Felipe at 1,390 feet, with a good showing; and its No. 18, same, is drilling in shale at 600 feet. Mexican Petroleum Co.'s No. 3, Lot 1, is drilling at 1,342 feet.

**Mexican Eagle Operations**

Mexican Eagle Oil Co. (Mexican Atlas lease) No. 1, Lot 1, 4-B, has cemented 8-inch in the San Felipe at 1,203 feet; its No. 2, same, is drilling in shale at 700 feet, and its No. 3 is drilling around 410 feet in shale. Rich Mex Oil Co.'s No. 16, Lot 1, 4-B, is drilling in the San Felipe at 1,550 feet; its No. 21 is drilling in the same formation at 1,115 feet, its No. 30 has cemented 8-inch in the San Felipe at 1,130 feet; its No. 33 is drilling in the San Felipe at 1,200 feet; its No. 34 has cemented 8-inch at 1,120 feet in the San Felipe; its No. 37 is drilling in shale at 925 feet; its No. 45 is spudding and its No. 52 is rigging. Venable and others' No. 4-A, Lot 1, 2-B, is rigging; and his No. 7, same, is drilling at 1,100 feet in shale. Transcontinental Petroleum Co.'s operations in Lot 4, may be described as follows: No. 35 is drilling in limestone at 1,925 feet; in Lot 1, its No. 52 is rigging; its No. 60 is drilling in limestone at 1,970 feet; its No. 61 is drilling in the San Felipe at 1,300 feet; its No. 64 has cemented 10-inch in the San Felipe at 1,400 feet; and in Lot 2 its No. 14 is drilling in a limestone at 1,930 feet. Weigand and others' No. 2. Lot 1, 2-C, is drilling in shale at 930 feet and his No. 3, same, is spudding.

**Old Sectors**

In the old sectors of the Panuco Field, drilling operations are as follows: La Corona Petroleum Co.'s No. 70, Salvasuchi has cemented 8-inch at 1,210 feet in limestone; its No. 82 San Mauel is drilling in shale at 168 feet; and its No 83 Delicias is rigging. East Coast Oil Co.'s No. 431 Ingenio has 8-inch cemented at 1,275 feet; its No. 432 has cemented similar casing at 1,320 feet in the same formation, and its No. 433 is rigging. Gilliam and others' No. 1, Finca, of Lot 2 East Maguabes, has set surface casing at 157 feet in shale. Ita Mex Oil Co.'s No. 12, Lot 25 Tamismolon, is drilling with a diamond drill in shale around 800 feet. International Petroleum Co.'s No. 20 Tanchicuin has cemented 8-inch in a hard, gray shale at 1,340 feet; Mexican Gulf Oil Co.'s No. 13 Lopez has cemented a string of 6-inch in limestone at 1,252 feet. Mexican Sinclair Petroleum Corp.'s No. 2 Tananturo has cemented 8-inch in a lime at 1,262 feet; National Oil Co.'s No. 11 Chijoles is drilling 800 feet in shale and has shut down temporarily for a pump. Transcontinental Petroleum Co.'s No. 5 Tanchicuin is drilling in shale at 300 feet; and its No. 4 Paciencia is rigging. The Texas Co.'s No. 13, Lot 17, Lomas y Llanos, has cemented 8-inch in shale and shell at 1,600 feet.

**In Topila**

In the Topila Field, Credito Petrolero, No. 12, Lot 6, Pac. de Agua, is drilling in the San Felipe at 1,630 feet. Cortez Oil Corp. is rigging up with diamond drill for its No. 5, Lot 58 Lagartero. La Corona Petroleum Co.'s No. 18-A Topila is drilling in a limestone at 2,200 feet. In this connection, the Corona's No. 1 Tobalo, north bank of the Panuco River, developed some oil around 2,160 feet, but drilling to 2,557 feet it encountered salt water. The well might make a small stripper. It finished in the San Felipe. Fisher, Durham and others are ready to test cemented 8-inch at 1,616 feet in No. 5, Lot 41 Pac de Agua. La Espuela Oil Co., No. 3, Lot 45, Pac. de Agua, got the top of the Tamasopa limestone at 2,200 feet, with a well good for about 200 bbls. The drill was sent to 2,306 feet without increasing the showing, hence, it is called a completion. East Coast Oil Co. has a fishing job on at 2,085 feet at No. 506 Nelson. Gilliam and others, No. 2, Lot 2, Pac. de Agua is preparing to cement 6-inch in the San Felipe at 1,577 feet. Mexican Oil Co.'s No. 1, Lot 19, Tamboyoche, is shut down at 100 feet for boilers. Hicks & Hull, contractors, No. 8, Lot 6, Pac. de Agua are drilling in the San Felipe at 1,825 feet; their No. 10, same lot, has cemented 6-inch in a shell at 1,558 feet; their No. 12, same, has also cemented 6-inch in a similar formation at 1,527 feet; their No. 13, Lot 3, same sector, is drilled 1,250 feet in shale, repairing boilers. Talvez Oil Co.'s No. 13, Lot 3, is drilling in shale at 1,450 feet.

**Miscellaneous Tests**

In the Ebano Field, Mexican Petroleum Co.'s No. 20 Chijol, is drilling in shale at 1,105 feet; its No. 32, La Dicha, is drilling in a similar formation at 695 feet; its No. 33, same, is drilling in limestone at 1,765 feet, and its No. 34 is a derrick. In the Culebra, north of the Tamesi River, the same interests, drilling No. 4, are making hole at 1,445 feet.

In Los Esteros, American International Fuel Co.'s No. 11 is setting a packer in a sandy limestone at 2,682 feet, to shut off some water; and its No. 13 is rigged, waiting on permit.

In the Marland Field, Cia. Petroleum Franco Espanola, No. 2 Limon, has cemented 10-inch in a hard shale at 1,026 feet.

In Caracol, not far from Tampico, the Venable interests, through various contractors, are drilling as follows: No. 1, Lot 31, has cemented 8-inch in the San Felipe at 1,650 feet; No. 2, Lot 50, which is the only lot that has thus far shown any production under this recent drilling, is a failure at 2,760 feet; No. 1, Lot 21, is rigging; No. 1, Lot 41, is drilling in the San Felipe at 1,995 feet; No. 1, Lot 32, has cemented 8-inch in the San Felipe at 1,602 feet, and No. 1, Lot 94, is drilling in gray limestone and chert at 2,615 feet, too deep for much hope.

Drilling operations in the Southern Fields continue suspended.

**Notes**

East Coast Oil Co.'s wells Nos. 7 and 8 Halcon, the former finished at 1,965 feet last February, and the latter at the very shallow depth of 1,775 feet last April, both rated good for several thousand barrels each when completed, have been pinched down to less than 1,000 bbls. each in order to maintain pressure and keep back water.

A heavy norther early last week blew down the Agwi Company's derrick for its No. 6 Laguna de Tamiahue. The derrick has just been completed.

Transcontinental Petroleum Co. lost a payroll of $3,000 pesos when 18 bandits held up its El Barco office recently. As the men were leaving with the money they shot down an old Mexican and a Mexican boy who came upon them.

## GULF COAST

(Continued from Page 48)

Purchases of producing properties have added to the interest displayed in the region during the week. The Rio Bravo Oil Co., a subsidiary of the Southern Pacific Railroad, acquired the property of the M. K. Towns Production Co., consisting of 50 acres and five wells. The lease is in the southwest end of the Merriweather tract and in the old part of the field. The purchase price is said to be 250,000. The Rio Bravo Co. will probably have the crude topped in the field and deliver the residue to the railroad company for fuel. The Grayburg Oil Co. bought the holdings of the Royal Oil Co., consisting of a 40-acre lease and 7 wells. The consideration is unknown.

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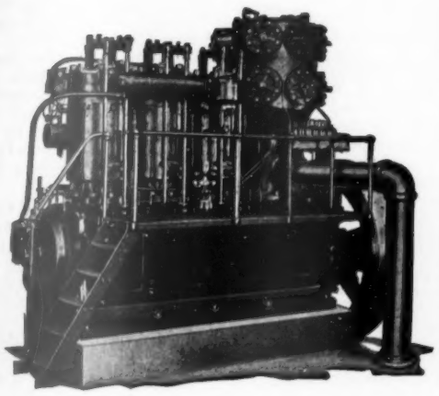

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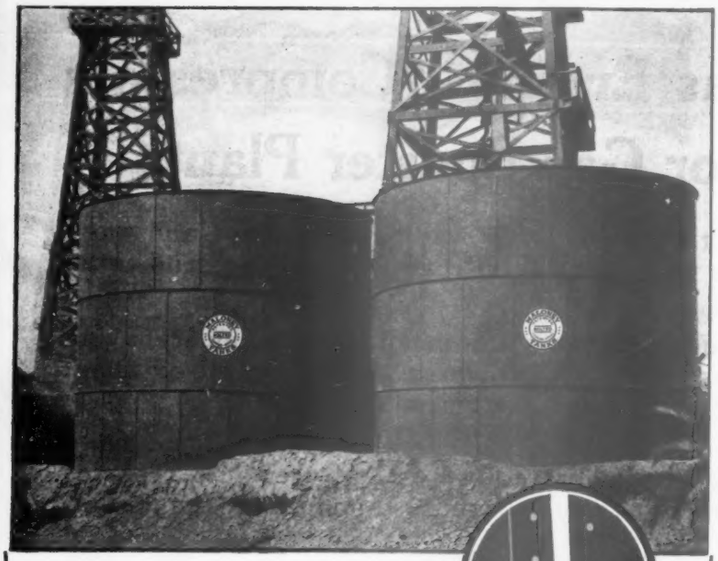

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KEYSTONE COPPER STEEL

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MALONEY TANKS

The lease is likewise in the old part of the field. The United North and South Oil Co., which opened the field, is building warehouses and an office building on Fee land west of the town of Luling.

The United North and South Co. is drilling No. 5 M. Mercer, No. 4 A. Mercer, No. 3 Gideon, No. 7 Tabor, No. 2 Trammel, No. 1 and No. 2 Lee Byrd in the field. In Guadalupe County its No. 1 Allen is drilling below 1,500 feet. It offsets the company's No. 1 Lopez, a 20-bbl. well which came in during December and extended the field 3 miles to the southwest. Some operators think the Lopez well is on another structure. The same company is starting No. 1 McKean, No. 2 Merinos (Lopez) and the Danciger Oil Co. is starting No. 1 Keen. Other companies drilling or starting in Guadalupe County include the Magnolia Petroleum Co., J. K. Hughes Development Co., Dixie Oil Co. and Rycade Oil Co.

The Magnolia Petroleum Co. assisted in financing the operations of the United North and South Co. in the Luling Field and it is reported the Atlantic Oil Producing Co. has made a similar arrangement covering its operations in Guadalupe County. If production is developed, the crude will be shipped in tank cars to the docks of the United Central Oil Corp. on the Houston ship channel and then transported in tankers to the Philadelphia refinery of the Atlantic Refining Co.

**Laredo District**

A third pipe line from the Schott, Wolcott, Mid-Ojulas and Aviator producing districts to the tracks of the Tex-Mex Railroad at Mirando City is being planned by the Witherspoon interests. It will be a 4-inch line and 8 miles long. Completions during the week include the Magnolia Petroleum Co.'s No. 17, making initially 100 bbls. at 1,665 feet, the Neuva Oil Co.'s No. 2, rated at 125 bbls. at 1,775 feet and the Shasta Oil Co.'s No. 3, good for 100 bbls. at 1,700 feet. The latter is in the Mid-Ojulas district. Morgan and others' No. 1 Gibble is bailing at 1,985 feet. It is located 1 mile north of the gas wells on the Barnsley Ranch. The Southwest Texas Oil Co. is starting a deep test 1½ miles east of Oilton. It will be drilled to 3,500 feet if nothing is found above that level. It is the first test in that section.

**Callihan District**

The Callihan crude has been advanced to 1 per bbl. The Adams Production Co.'s No. 1 Stitz, one-half mile south of production, is drilling in a sand at 865 feet. The Cisco Oil & Pipe Line Co. is also drilling in No. 1 H. Callihan at 760 feet. The South Texas Oil Co. is running in tubing to pump No. 1 H. Callihan. Its No. 1 Brown is drilling at 450 feet with a location for No. 3 Cox. Allen and others' No. 1 Stitz is rated at 100 bbls. initial at 700 feet. G. E. Smith's No. 1 Fisher is a gasser. The San Balt Co. is rigging No. 3 and No. 4 Stitz. Head and Scarborough's No. 1 Fisher is shut down with No. 2 rigging. They are north of the Frio River. The Coyle-Concord Co. is rigging No. 1 Frio River bank as an offset to Callihan No. 2, the discovery well. Dulliham and Thornton have spudded in No. 1 H. Callihan. W. B. Head has spudded in No. 1 Weeding Ranch, 2½ miles north of Three Rivers. The Humphrey interests' No. 1 Shriner 12,000-acre lease is drilling below 600 feet. Two shallow tests and one deep will be drilled. The Houston Oil Co.'s No. 3 Cartwright in the southeastern part of Live Oak County, is deepening at 2,700 feet. The Packers Oil Co.'s No. 1 Garbett in that county is drilling below 1,365 feet.

In Bexas County, the Houston Oil Co. is deepening an old hole from 2,400 feet, located 14 miles south of San Antonio. The National Oil Co. is drilling No. 5 Oliver. Over across the line in Atascosa County, the Empire Gas and Fuel Co. is drilling No. 1 Hughes. The Humble Oil & Refining Co. has started No. 1-A Kleberg in Kleberg County.

The Milam Pipe Line Co. has been organized to lay a line from the shallow sand sections to the tracks of the Arkansas Pass and San Antonio Railroad, 3 miles north of Rockdale. It is reported the line will pay $1.55 per bbl. for crude. Kelly and Guthrie's No. 1 Timmerman is making 10 bbls. at 645 feet. It is 4½ miles north of Rockdale and extends the field a short distance to the west. Brunton & Garland are starting a test southeast of Rockdale.

The Cardinal Oil Co.'s No. 1 in the southern part of Bastrop County is drilling below 800 feet. The Southwestern Petroleum Co.'s No. 1, 2 miles north of Garrison, in Rusk County, is drilling around 3,500 feet. The Producers' Association No. 1 Matthews, a proposed deep test in the old Nacogdoches Field, is shut down at 2,000 feet. Texas City people have a derrick up for a test west of that place. The Texas Co. is rigging for a test near Danbury in Brazoria County.

Late in the week, the United North and South Oil Co.'s No. 3 W. M. Mercer in the old section of the Luling Field in Caldwell County, came in flowing 1,100 bbls. The Grayburg Oil Co. is drilling in No. 3 and No. 4 Proctor there.

## NATIONAL FUEL CONTRACT

At the annual meeting of National Fuel Oil (1921) Ltd., in London, Chairman N. Prentice said an important contract had been entered into with the Texas Oil Co., under which their company will market certain petroleum products of the Texas Oil Co. in the United Kingdom, and if they could at an early date put their house in order they would be in a position to earn a substantial revenue by this alliance. He added that the position of the oil industry in Mexico, due to salt water and the very unsettled condition of the country, had not helped in their negotiations for the development of the property. As the result of the report of an expert geologist, it was apparent that a very considerable amount of money would be required to develop the oil concessions held by the Mexican Co., and the directors were of the opinion that for the present, at any rate, there were better uses for any capital that might be available.

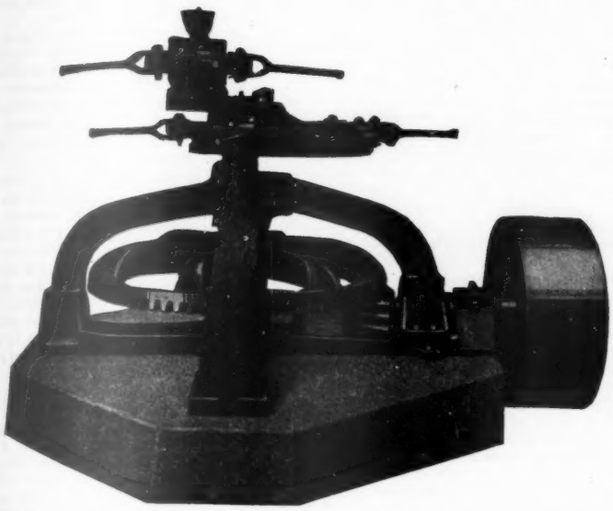
## TANKERS AND MOTOR SHIPS

Lloyd's Register Shipbuilding Returns show that there are at the present time 33 steamers and motor vessels, each of over 1,000 tons, with a total tonnage of 175,164 tons, under construction in the world for the carriage of oil in bulk. Of these tankers, 13 of 83,646 tons are under construction in Great Britain and Ireland. The tonnage of vessels now building in the world which are to be fitted with internal combustion engines amounts to 634,027 tons, while the tonnage of steam vessels under construction is 1,793,579 tons. The motor tonnage thus equals 35⅓ per cent of the steam tonnage, showing the remarkable development which is taking place in the adoption of this system of propulsion. These figures include 55 motor vessels each of 5,000 tons and upwards, seven of which are of between 15,000 and 22,000 tons.

## TO CLAIM ARKANSAS RIVER

TOPEKA, Kan., Feb. 2.—Persons living adjacent to the Arkansas River can appropriate the entire river bed if the State loses its fight to maintain the river is a navigable stream. F. Dumont Smith, attorney for oil men, has made known his intention of fighting the suit which will be brought by the State to have the Arkansas River's status fixed by the courts. The State courts have already held the Arkansas a navigable stream. If so it belongs to the State. The Federal Court, however, has held the stream south of Kansas to be non-navigable.

# REID TYPE "S" PUMPING POWER



"S" PUMPING POWER

The Reid Type "S" Eccentric and Disc Geared Pumping Power is intended for use on a number of wells which do not require as large a power as the two eccentric type and yet, due to their location, cannot be readily balanced on a one eccentric power. The addition of the disc to the eccentric permits better balancing of the wells, resulting in smoother operation with less strain on the machinery.

We do not recommend this power on installations requiring more than 15 HP as, with the exception of the added disc, this power is the same as our "R" one eccentric power.

**Write for Bulletin No. 25**

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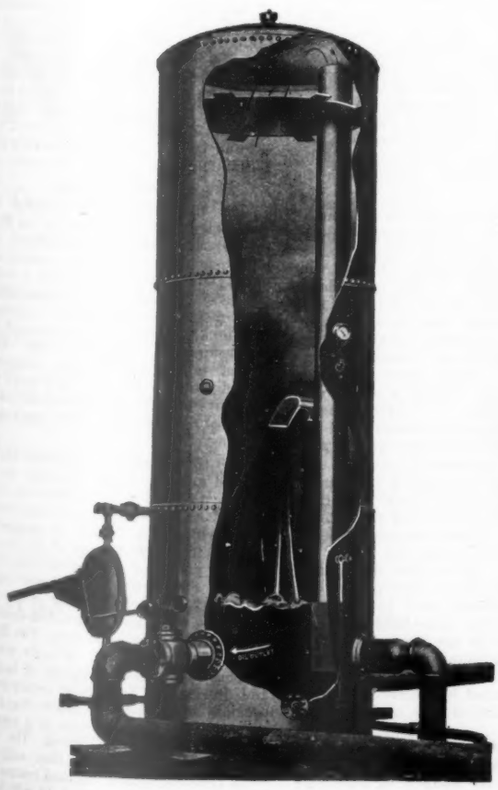

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For all ordinary problems of separating oil and gas, the Smith Oil and Gas Separator will do the work efficiently and economically.

In the event excessive gas pressure accompanies the flow of oil, it may be necessary to have a separator built of heavier material.

Our plant is equipped to build a Separator for any size job. The Smith Separator Company is in a most commanding position before the Petroleum Industry with respect to the service that it can render.

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**Made under SKF Supervision**

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## OIL LABORATORY WORK BY THE GOVERNMENT

(Continued from Page 62)

engines and the great variety of the equipment in the oil field. It is believed this information will result in material savings to the industry.

Much work has been done in gathering statistics upon the cause of accidents in the petroleum industry.

Study of water problems in the Mexia, Texas, Field was completed with reference to about 135 wells, and a report was issued. A number of operators were instructed how to use the pressure method of cementing through tubing for shutting off bottom water. A study of water conditions in the Currie and Richland Fields of Texas was completed and a peg model was constructed in each field. Special work was done in the Smackover Field with special reference to controlling artesian top waters, gas flow oil production, and the relation of oil water and oil sands and remedial work.

### Oil Shale Research

Research work on oil shale has been continued throughout the year, in cooperation with the State of Colorado, University of Utah, and the Department of Conservation of the State of Indiana. The object of this work has been two-fold. First, to determine the conditions of retorting that produce the highest yields of the best oil from various shales, and second, to apply these principles in a study of methods of refining shale oil. Under the first, effort is made to determine the effect of variable factors on the quantity and quality of oil produced with the ultimate idea of determining the particular set of conditions which, for a given shale, will yield the most products. Under the second problem, the refining of shale oil, the bureau is endeavoring to work out means of producing satisfactory products from the oils with the smallest possible refining loss.

Experiments are being made to determine the effects of time and temperature of preliminary heating, holding at various temperatures, use of steam in the retort and a complete anaylsis of all the products obtained. Most of the refining experiments have been centered upon the refining of gasoline or motor fuel from shale oil. This work has shown that good grades can be obtained. How far the present shale practice in foreign countries may be adopted for use in this country will be determined. A great variety of facts concerning the development of the shale industry has been ascertained so that now further experiment has a firm foundation upon which to build.

The work of determining the best methods for refining oil for American shale is one of the far seeing activities of the Government. Dependence upon this source of petroleum to any appreciable extent probably is far in the future and it was so recognized when it was undertaken. But the scientific mind runs to problems that could not attract the commercial instinct. Long years of experiment are needed to acquire a solid foundation of knowledge in a new industry and although the shale industry has existed abroad for about three-quarters of a century on a commercial scale it has not been sufficiently perfected to warrant extensive operations to supply a nation.

There is sufficient shale in the United State to furnish almost an inexhaustible volume of fuel and some day it will be urgently needed. When that day comes, with the continuation of these studies, all that will be necessary will be to apply the principles that have been and are being worked out by the Bureau of Mines to place it on a sound foundation. The money value of this work to the nation cannot be estimated in dollars and cents although that value is sure to mount into a gigantic sum.

### Field Problems

The back pressure exerted by gas on oil fields has been the subject of extensive studies by the Bureau of Mines and so greatly has this subject interested one large oil company that it has arranged with the bureau for experiments in one of its oil fields. These experiments will include both pumping and flowing wells.

The steaming of oil sands and methods of handling oil wells have been under investigation during 1923. It was observed that steam was very effective in driving oil from sands on the laboratory scale, although it was not believed that this necessarily indicates that steam would be practicable in the oil fields.

A paper is now in the course of publication entitled "Manual for Oil and Gas Operators" and it includes operating regulations to govern the production of oil and gas under the acts of February 25, 1920, June 4, 1920, and March 3, 1922, and under special agreement by the United States.

The Bureau is carrying on a study of mud fluid for oil and gas field use which work has a number of purposes. It is desired to determine the rate and amount of penetration of mud fluid into formations of various textures and porosities under different pressures. Also the physical and chemical characteristics of mud fluids in wells. The effect of adding so-called "peptizers" (chemicals) to prevent or accelerate the settling of mud is being studied, as well as methods of treating mud to divide finely the clay particles so that the mud will enter fine gray sands. A study was made of "loading" mud fluids to give higher specific gravities and thus make them more effective in holding down high pressure in wells.

Numerous experiments were made on oil well cements. The effect of high ratios of water on tensile strength of cement was studied. The effect of pressure on the time of the initial and final set was observed. Several brands of cement were studied with reference to their use in oil wells. In addition to the laboratory work field observations were made and conditions under which mud and cement were handled and placed in the Tonkawa oil field were studied. It is declared that this investigation will be of great value as it will furnish fundamental data that will be of the utmost importance in oil well mudding and cementing.

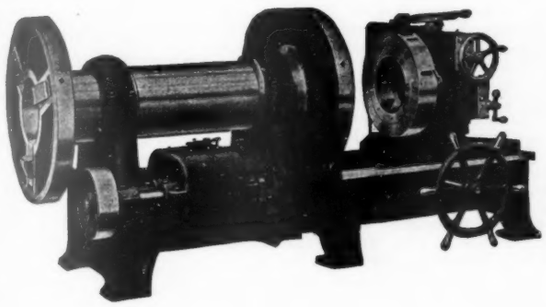
A bulletin is in the course of preparation on diamond drilling and its application in the oil industry. This will be of especial interest to oil operators at this time because the importance of taking cores of formation penetrated in drilling has become well recognized. The purpose of the Bureau of Mines in undertaking this work was to furnish the oil industry a bulletin on these phases of diamond drilling that would be of interest and value to anyone attempting to use the diamond drill in oil field work.

### Gasoline Yield

The manufacture of gasoline from crude oil has been pursued by the Bureau to determine what fundamental principles should be applied to obtain a maximum yield. This involves first a study of theoretical problems and development of fundamental considerations relative to fractional distillations, and second, tests in refineries throughout the United States to substantiate the theories involved; and third, tests in a small refining unit specially constructed for the purpose of developing new methods of running.

Fuel conservation in refineries has been studied and a series of efficiency tests are being conducted to determine the relative efficiencies of various types of refining equipment. The study of evaporation losses is regarded as one of the most important pieces of work ever done by the Bureau, and it was given a new impetus during 1923 by the grading of the crude oil price schedule in the Mid-Continent Field on the basis of gravity. The Bureau now sees the fruit of its early work in evaporation losses. Methods of handling and storing oil have been revolutionized because of the large losses found and pointed out by the Bureau as a result of its investigation. During the coming year it is expected that additional work relating to first aid and rescue work in the Mid-Continent oil field will be undertaken. In doing this the Bureau's engineer will work in cooperation with the

# B & K Tangent Pipe Die Head



**B & K pipe machines can be furnished with the new type of die head, with high speed steel dies for pipe and casings. Also with special wide dies for extra long threads. This makes a most desirable equipment for oil field use. The machines are built for hard work, and will stand the gruellling service usually received in the oil country.**

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The eccentric and disc feature enables you to balance wells without swings. Equivalent to double eccentric.

Suitable for wells up to 1500 feet deep.

Now made in four sizes, each a complete, self-contained unit, with Four-Cycle Gas Engine. Can be set on wood or concrete foundation.

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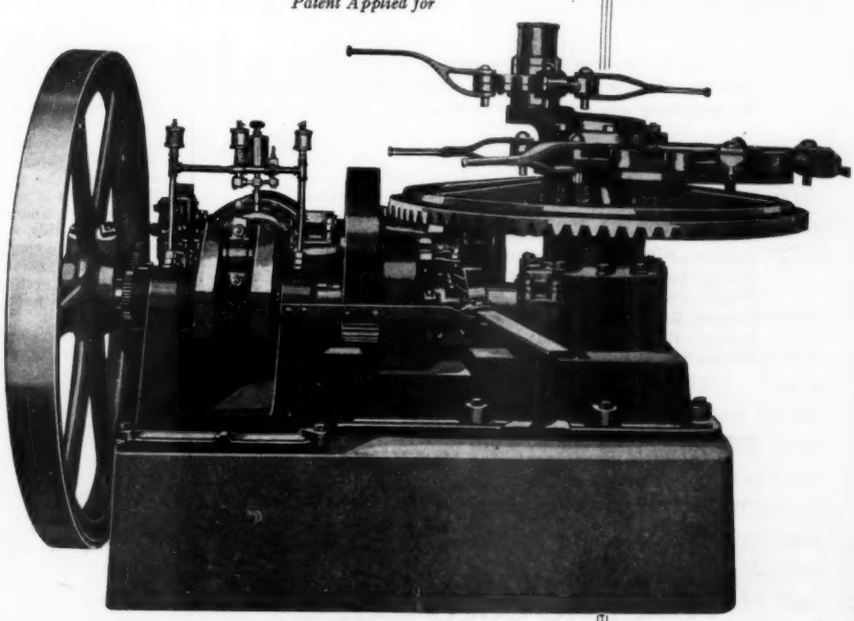

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# Hog-Tie That Troublesome Well!

SOMETIMES the thing that has the most merit is the hardest to sell. It's like guaranteeing investors a return of more than 8%—it makes 'em suspicious.

We have to tell the truth about Axelson products, and too often the truth sounds too good.

Picture a Field Man long harassed with sucker rods that break, or wells that sand up, or both. Then along comes a Frick-Reid man who says that in Axelson Sucker Rods and Pumps (working barrels) he has a sure cure for all this. Can the Field Man be blamed if he snorts his disbelief? Not so.

Our problem in selling Axelson Rods and Pumps has always been the problem of initial orders. We are always happy when we can get just ONE troublesome well on a lease equipped with Axelson products. We'll still be in business when that one well sells equipment for all the rest.

We could spin a thousand true yarns about wells that had to be pulled every week or so because of sand conditions or broken rods, and about how these same wells are now producing month after month without interruption.

But the big question is, can you hog-tie that troublesome well on your own lease with Axelson equipment? We don't know why not, and we challenge you to try it!

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Petroleum Safety Council of Texas, and various oil companies.

**Natural Gas**

An educational campaign for the conservation of gas was carried on during the past year, and a paper was prepared entitled "Natural Gas Manual for the Home." Some 100,000 copies of this paper were purchased from the Government printing office by various gas companies.

The determination of leakage losses in natural gas transmission systems was the subject of a careful study to obtain authentic information that will be helpful to gas companies in increasing the efficiency of their natural gas transmission systems. Many tests have been made and during the coming year this work will be extended to include leakage surveys of several natural gas pipe lines. Great interest in this work is being shown by natural gas companies.

During the past year the crude oil survey has been continued, and oil from several States has been reported upon. It is the desire of the Bureau to analyze crude oil from every field of commercial importance in the United States, and foreign countries, and to publish the results. Every oil is run in similar manner, so that a Pennsylvania crude may be compared with a Rocky Mountain crude or with a crude from Egypt. All fields in the United States, excepting the California fields, have been reported upon. During the coming fiscal year, it is planned to complete the analyses of California crudes, as well as of foreign crude oil, all of which have been received excepting samples from Russia.

One of the greatest present losses in the oil industry is the loss of oil in oil-water emulsions. In fields where water and oil are produced together, emulsions are frequently formed, and some times reistance to separation is so great that the cost of recovery is more than the recovered oil is worth. Under such conditions "cut" oil or "BS" is burned or drained into ponds or streams. It is estimated that in the years 1920 and 1921 more than 100,000,000 barrels of this cut oil was produced in the Mid-Continent and Gulf fields. Approximately one-half of this oil was treated which resulted in a saving of probably $50,000,000. The rest of the cut oil represented a loss. In this work each field represents a different problem for treating "cut" oil.

**Wax and Lubricants**

A study of wax and lubricating oil from Oklahoma crude is expected to produce valuable results. The object of this study is to save the lubricating oil which is the most valuable, together with waxes and coke. The fundamentals underlying the processes of refining oil for lubricants are not well understood, so that for the purpose of this study, a complete wax plant has been constructed at Bartlesville. A novel feature of the cold room is the refrigerating system which makes use of high gravity, natural gas gasoline as a refrigerant.

During the year new problems relating to natural gas gasoline work came up and a study is being made to determine the gasoline content of natural gas. It is hoped that a code of testing may be formulated which can be followed in all fields. There will be during the coming year a study of refining properties of selected grades of crude oil to determine the relative refining values or the number of them. All refined products will be manufactured from the crude.

A study was made on the effect of sulphur on the distillation of Mexican crude and a detailed examination of two samples of crude oil from Argentina was made at the request of the Argentine Government. During the past year two surveys on motor gasoline were made, and these show that the quality of gasoline changed little during the year.

A survey of kerosene was conducted which indicated that further investigation should be made particularly in connection with long time burning oil. The signal section of the American Railway Association cooperated in this work. A study in electrical cracking of petroleum products was made and shortly there will be published two reports giving first, the results of the work on the production of carbon black, and second, the effects of high tension discharges during cracking of oil.

The Bureau of Standards and the Bureau of Mines together with the Geological Survey have in hand a very large number of problems that are to be worked out and upon which they are now working, some of which will depend upon the liberality to be shown by Congress. An expansion of appropriations will mean an expansion of this work because there is now available a very large and efficient corps of scientists thoroughly trained for these particular duties.

## BRITISH PETROLEUM INDUSTRY IN 1924

(Continued from Page 74)

ton. Lubricating oil, American pales, £11 5s. to £28 5s. per ton; American reds £15 5s to £20 10s. per ton; American dark clyinders, £11 and £13 7s. to £24 10s. per ton; American filtered cylinders, £15 10s. to £30 per ton. Gas oil, 4½d. per gallon. Lamp oil, drop from 1s. to 11d. per gallon during the year for water white and from 11d. to 10d. for Standard white, both quotations for bulk with 2d. more per gallon for barreled.

**Outlook for 1924**

There is reason to believe that the trends so prevalent in the petroleum industry of Great Britain for the past three or four years will be maintained through 1924. Every factor points to an increase in the total consumption, and hence the total importation of, petroleum and its derivaties. The use of illuminating oils and gas will probably continue to decrease slowly, owing to very evident and natural causes, but the increased consumption of all other varieties of mineral combustible and lubricating oils will much more than offset these small decreases in the total quantities consumed.

Increased quantities of gasoline will continue to be used. The motor trade of Great Britain is looking forward with what it believes to be the best of reasons to an excellent year, during which it estimates that some 50,000 new motor vehicles will be placed in operation. Motor tire and accessory manufacturers are making plans for greatly increased business, which means that they are preparing not only to equip new vehicles on a large scale, but that they expect increased operation of vehicles already in use, which will further add to the demand for gasoline.

Lubricating oil consumption must keep pace with any increase in the use of motor cars, and in addition to this there is the slow but steady increase in industrial plant operation, and with every new or restarted spindle, dynamo, or steam engine there must be additional mineral lubricants supplied to keep them running.

Fuel oil will undoubtedly come into greater use in 1924. If there is a slump in industry, and hence in exports and imports, and in the foreign carrying trade, and ocean shipping is difficult of profitable operation, it should result in more oil-burning installations in steamships on account of the economy effected thereby as against operation on coal. If the carrying trade is more prosperous in 1924, as there is every reason to believe it will be, those ships now burning oil will make more voyages, and new or laid up bottoms will be put in commission, and probably with oil-burning machinery.

**New Fields for Increasing Demand**

These increased demands for gasoline and fuel oil will not, however, be so greatly reflected in increased receipts of these two items as they will be in the importation of crude oil. Refineries now operating and being built in Great Britain can take care in 1924 of a much greater bulk of refining than is today being handled, and every month of 1924 should see increasing quantities of refined products turned out by British plants from the increased quantities of

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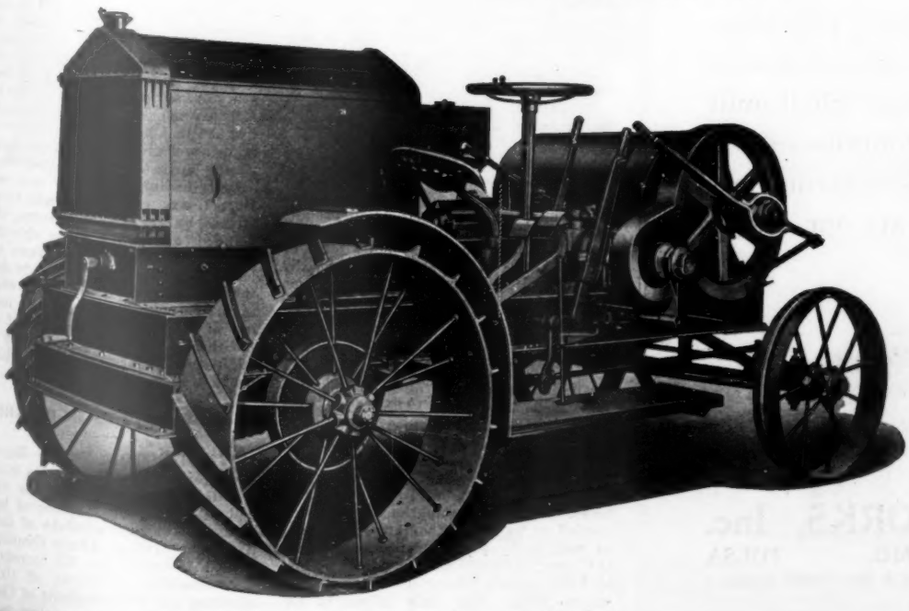

Cuts operating cost. Wide range of speeds. Operating levers centrally located. Three speeds and reverse on spool or road. Special features: Shafts mounted on Ball Bearings, heat treated Nickel Steel Gears, Steel Clutches, Bronze Bushings in all parts running loose on shafts; moving parts are enclosed running in oil, protected from dust and dirt. Power take off pulley for belt work. Drawbar on rear full width of machine.

Patents Applied for and Pending

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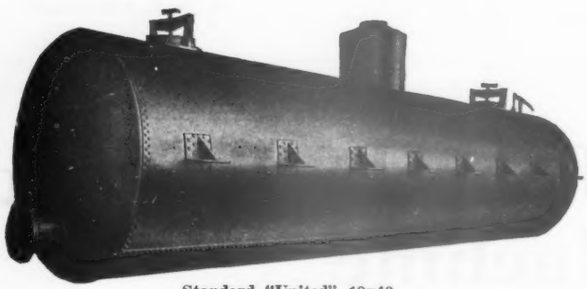

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Double riveted throughout. One-piece head flanged and dished. Fire course is one sheet of still bottom steel. Shell built with four seams horizontally — NO ROUNDABOUT SEAMS—offering less possibility of leaks. Lugs are our design of built-up steel plate.

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crude oil which will be imported. The decreased percentages which gasoline and fuel oil will have to the total import of petroleum products into this country in 1924 will not necessarily mean that actually fewer gallons of these two items will be purchased in America by Great Britain, but it will mean that America will not obtain its former share of the increasing demand for them in this country. The new business will be going to the expanding fields and refineries in other parts of the world and to the British refineries.

With the increased participation of British capital in and its control of new oil fields, it is only natural that a greater percentage of British needs should be drawn from these fields. This will result in a constantly narrowing gap between the percentage of petroleum imports into the United Kingdom from America and those from other fields. In 1923, 57.7 per cent of these total imports came from America and 29.3 per cent from Persia. At the rate of change of the past three years, two years from now will see Persia supply as great a percentage as America.

In motor spirit 1923 showed 38.9 per cent from America and 37.6 per cent from Persia. The close of 1924 will doubtless show a greater part from Persia than from America. To sum up the 1924 prospects it is safe to say that there will be increased importations of petroleum products into this country in all lines except illuminating and gas oils. large increase in fuel oil and gasoline consumption, the source for which will be crude oil refined in this country, and increased imports from Persia and other British controlled producing areas. Lubricating oils will increase moderately in import, with practically all of it from America. Prices should not show marked changes owing to the standardization of the industry, and any changes which do take place should, because of the high production of the past two years resulting in present large world supplies of stored oil, be in favor of the consumer.

## NEW PROBLEMS FROM WORLD COMPETITION

(Continued from Page 40)

the method of disposing of the oil. A pipe line leading to the Baku oil field would be practicable, thence to Batoum by the established oil route. Arrangements may be made with the Anglo-Persian Co. to pipe the oil over southern Persia to the Persian Gulf and to build a pipe line there would require consent of the Anglo-Persian Co. which holds a monopoly of such pipe line construction to the Persian Gulf. It is entirely possible, however, that the oil may be disposed of for Russian use and Russian oil more accessible to world markets exchanged for it.

Production of oil in southern Persia is increasing steadily, according to the annual report of the Anglo-Persian Oil Co. An output of 2,959,028 tons is reported by this company for the fiscal year 1922-23, compared with 2,327,221 tons for the preceding year and an estimated production of 3,775,000 tons in 1923-24. For 1924-25 production of 4,500,000 tons, or about 31,500,000 barrels is predicted by the Anglo-Persian Oil Co. which claims to have pipe lines to handle 5,000,000 tons or 35,000,000 barrels of crude.

There has been much interest in the development of Esthonian shale and during 1923 one concession has been granted for the exploitation of oil shale covering 5,000 hectares or about 12,355 acres. This concession was granted to a British concern and 23 permits for investigation purposes were issued to various persons. The total area covered by these permits aggregates 63,820 hectares of 157,602 acres. These investigations have been carried on by the Esthonian Government as well as by private concerns, so that the area of investigation now amounts to 1,900 square kilometers or about 650 square miles. The shale output in Esthonia in 10 months of 1923 amounted to 175,904 long tons and the output of oil 3,092 long tons, or 21,644 barrels. The result of this development is likely to prove more important in the production of oil in 1923.

### Chester Concession

The Turkish concession to Admiral Chester so signally failed of support by American capital that the course of events in respect to it now seems uncertain. It is reported that the Turkish Government cancelled this concession upon learning that it had come so largely under ownership of the British, although the company holding it is American. The trust agreement, under which this company is operating provides that 51 per cent of the stock must be owned by Americans. The Turkish Government doubtless will pursue the same course in respect to this concession as was adopted by Persia when it had about concluded a concession for the oil in its northern field with the Standard Oil Co. of New Jersey, and the New Jersey Co. undertook to turn a half interest over to the British. The proceeding was nulled and as is now known the concession was finally given to Sinclair. In the case of the Chester concession, however, the last thing that Admiral Chester desired was to permit any foreign, and especially British, capital to get into the enterprise. The story of how British capital did through its propaganda undermine American confidence in the Chester enterprise sufficiently to prevent American investment, and then how British interests undertook to absorb this American enterprise, makes a thrilling narrative of intrigue that remains to be told.

The record made by the petroleum industry of the world during 1923 is especially significant because it points to an activity in oil fields of all nations that has brought about competition that the industry has never before known and promises to increase competition during the coming year and thereafter. Turning their attention to fuel independence, all nations have directed the attention of their nationals to the problems of crude oil with the incentive of governmental support for those who undertake to promote such interests. This condition is sure to produce new problems for the American oil industry hereafter and to place it on a very different plane of activity from that which characterized it when our own country and our neighbor, Mexico, were almost the only stores of petroleum upon which the world depended.

## AVERAGE YEAR IN INDIA

While some of the stronger petroleum producing companies in India reported a successful business year and increased or maintained production, other smaller companies had a less prosperous year. The 1923 production total will probably be close to the average of the last few years of something under 8,00,000 barrels. A large amount of prospecting and wildcat drilling have been carried on in the known and probable petroleum areas, but results have been mostly negative. The actual drilling and other field work in Burma was greatly hindered by several strikes by the native laborers, who demanded equal pay with the white drillers. The controversy was long drawn out and has apparently been settled in favor of the employers. Great progress was made in the Burma Fields toward an increased use of electricity as a source of energy. Another step forward was made in the additional use of oil well gas, which formerly was wasted.

## INDIAN BILLS IN CONGRESS

WASHINGTON, Feb. 4.—Representative Howard of Oklahoma has introduced a bill giving non-Osages the right to sell allotted property inherited by them from full blooded members of the tribe. The house Indian Affairs Committee reported favorably the bill introduced by Representative McKeown of Oklahoma directing the Federal Court of Claims to settle all claims for or against the Seminole Indians.

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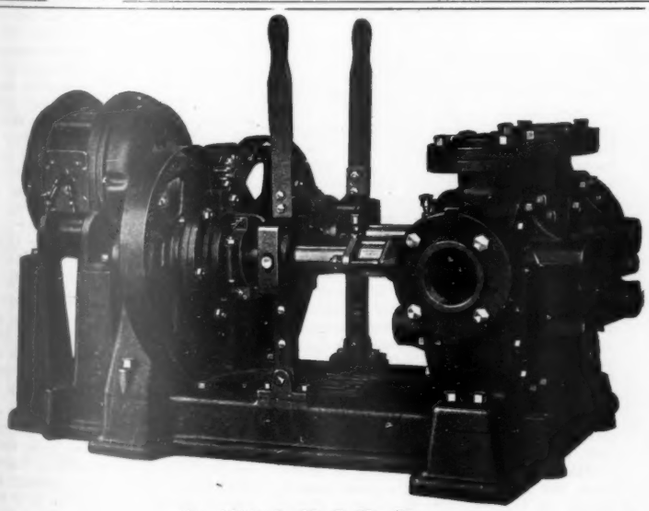
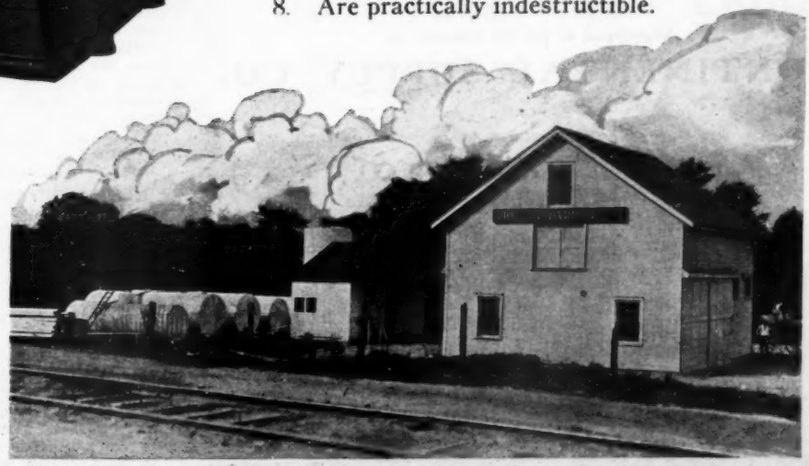


Fig. 3600—D. M. C. No. 5



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## Cheap American Oil Halts Operations in Dutch East Indies

Both local and outside conditions have tended to retard petroleum production activities in the Dutch East Indies. Lessened interest in new development in these fields is apparently attributable to two main causes, both of which have had considerable weight toward directing the local production policy of the Royal Dutch, which controls most of the East Indian petroleum areas. These factors, says the United States Department of Commerce, are, first, the uncertainty of the future taxation methods, and, second, the large volume of cheap oil produced by the Royal Dutch holdings in the United States, which has made it uneconomical for the time being at least to increase the yield in the East Indies. Early in the year the Royal Dutch, having decided upon retrenchment for these reasons practically ceased all development work in both the established and prospective fields. Orders were also given to reduce actual production where possible. Because of this general suspension of activities the 1923 yield will evidently not come up to the respective outputs of the last several years of something under 17,000,000 bbls.

Probably the most important undertakings in progress during the early months of the year, and before marktime orders had gone into effect, were the tests of the Djambi area in Sumatra as well as on Boenjoe Island off the East Coast of Borneo. Actual drilling was carried on at several places, but nothing beyond a gas showing in one well was reported. While a number of prospecting permits for petroleum were given to both Dutch and foreign interests in many areas throughout the archipelago, it is not believed that serious attempts will be made toward development.

### PERU OIL DEVELOPMENT SLOW

Under the new petroleum law in Peru, considerable activity has been carried on. Numerous denouncements have been filed for territories on the coast and a fair number in the "sierra" and "montana" sections. Figures regarding applications have not yet been given out and numerous concessions asked for are still pending. Until these concessions are definitely granted practical working of the law can not be fully observed, but it can be stated that with the exception of denouncements made by companies already operating for the purpose of increasing eventually the scope of their operations, a large percentage of the denouncements made have been by individuals for speculation with a view to selling to large foreign companies. Up to the present none of these foreign companies has taken up oil land, and it is the general impression that the provisions of the law are too onerous to warrant the large initial investment which would be necessary for a company not already established in the country to develop virgin territory. In 1921 petroleum production increased by 115,389 tons and in 1922 by 211,950 tons, when it reached a total of 700,619 tons.

### BUILDING TANKS AT CURACAO

The Royal Dutch Petroleum Co. is about to install large new tanks on the island of Curacao, a Dutch colony in the West Indies near Central America. There will be 41 tanks with a total capacity of 1,286,000 bbls., and they will be ready in October, 1924. For this purpose 200 Dutch metal-workers from Belfast, Ireland, where the tanks have been built, will leave shortly for the Indies to carry out the installation. The housing problem for these workmen has been solved by the dispatch of complete wooden houses and sheds, which were constructed in Holland.

## RUSSIAN STATEMENT ON OIL CONCESSIONS

M. Litvinov of Russia, assistant commissar for foreign affairs, who has recently been acting head of the concessions committee, has given to a correspondent of the "Manchester Guardian" a sketch of the history and present position of the concessions question since the formation of the central concessions committee 18 months ago. With regard to the petroleum industry he is reported as saying: "Perhaps the greatest interest abroad has been shown in connection with naphtha. We have hitherto only given concessions for oil prospecting, as, for example, to the Barnsdall Corp. in the Baku district and to an Italian company in Georgia. But quite recently a preliminary agreement has been signed for the formation of a mixed company for the exploitation of existing oil wells on a scale that will require a capital of 50,000,000 pounds. The concessionaires, in consultation with their bankers, have agreed to float a loan for the union Government of over 40,000,000 pounds. Needless to say, we should not have entered on an agreement of such magnitude with any but firms of the very highest standing, although at the moment I cannot, without their consent, give you the names of the group involved."

## EXPLORING MONTANA COST A VAST SUM

(Continued from page 36)

is produced from the Wall Creek sand and gas from the Greybull or Dakota. There are only three wells in the latter sand and on the top of the structure. One of these is good for 80,000,000 feet a day two years after its completion and the two others have a combined production of 50,000,000 feet a day, rock pressure 975 pounds.

High on the structure the First Wall Creek sand is found at 825 feet and the Second Wall Creek sand at 1,050 feet. The depth increases rapidly, moving outward as the surface elevation becomes greater, while the structural elevation becomes less. There are about 1,200 productive acres of Wall Creek sand territory. The thickness of both Wall Creek sands vary, the maximum of the first being about 90 feet and the second 75 feet. The pay is from 12 feet up to about half the thickness of the sands. This field in its eighth year produced 694,092 bbls. and is good for 1,250 bbls. a day at this time, but most of this production is credited to Wyoming.

There are 130 wells in the two upper sands and of these an average of 100 wells are pumped daily. The oil runs above 42 degrees gravity and is rich in gasoline content. There is a three-unit compression plant in the field which utilizes the casinghead gas.

The Greybull sand promises rich returns. The three gas wells showed it on the high to be completely impregnated with gas under great pressure and as the upper sands are rich in oil and gas it is logical to presume that the lower sand is well loaded with oil. It is likely the oil will be found down the slope and may be found over a greater productive area than in the two Wall Creek sands. It is hard to drill to the Greybull sand because the upper formations are inclined steeply, causing the tools to work down slope, resulting in a hole so crooked that it cannot be cased. This handicap may be overcome by the use of rotary tools. The Midwest is drilling with cable tools north of the field and southeast of it, and in both holes it is experiencing trouble because of the conditions recited. The top of the Greybull is found at its shallowest at 2,350 feet. It has a structural dip of over 1,000 feet to the mile. To reach the oil in the Greybull sand, presuming that oil exists, it will be necessary to drill deep.

Elk Basin structurally resembles Oil Creek in Fergus County, Montana, be

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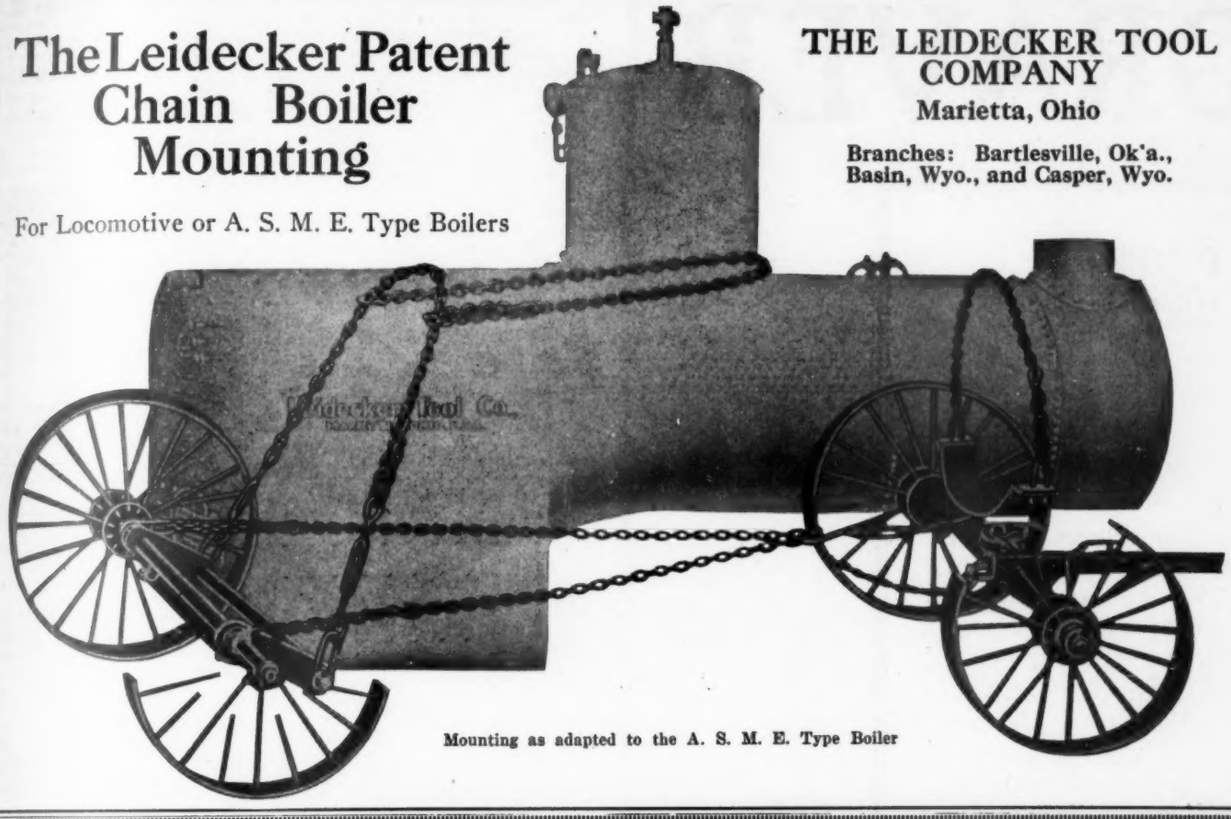

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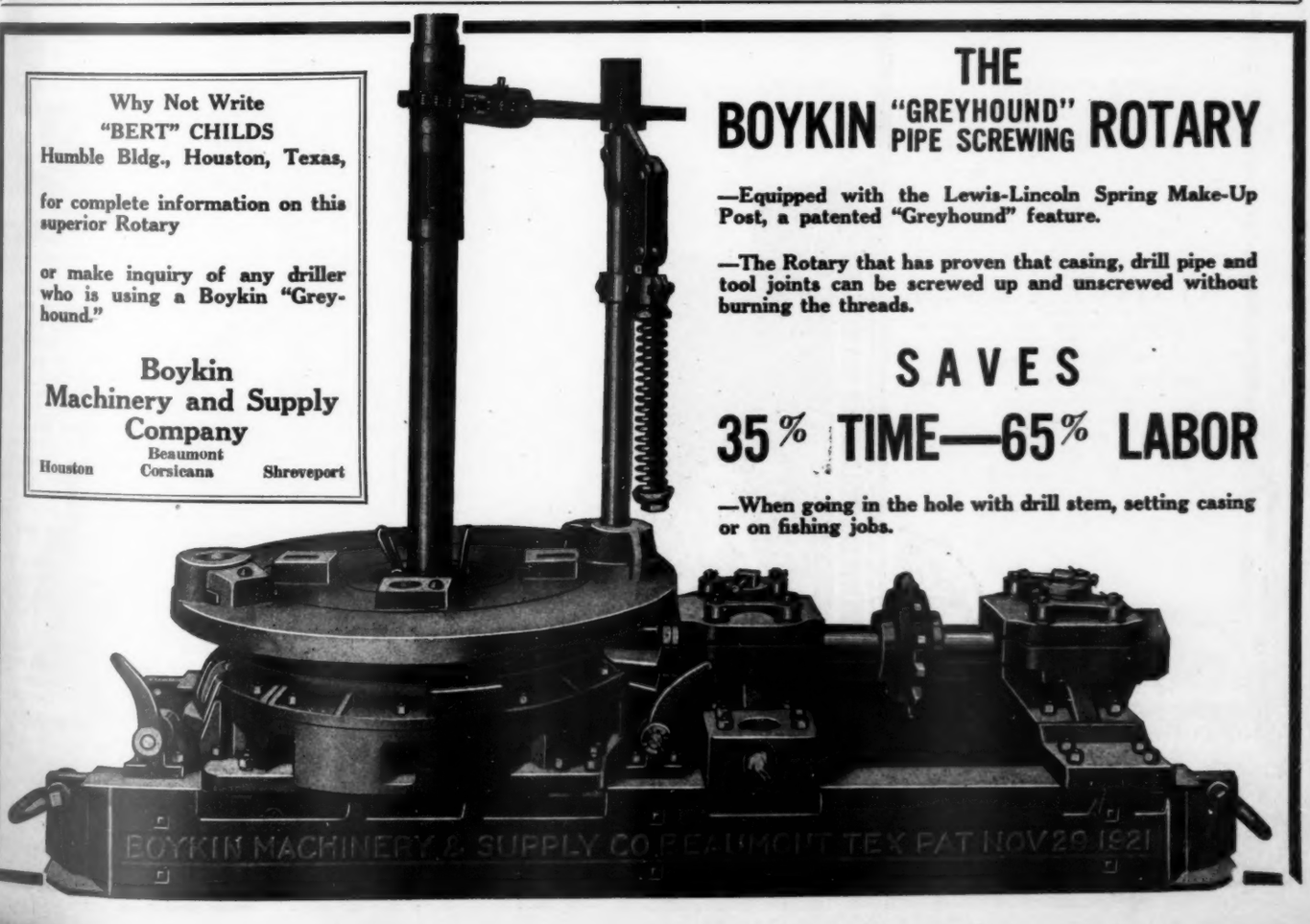

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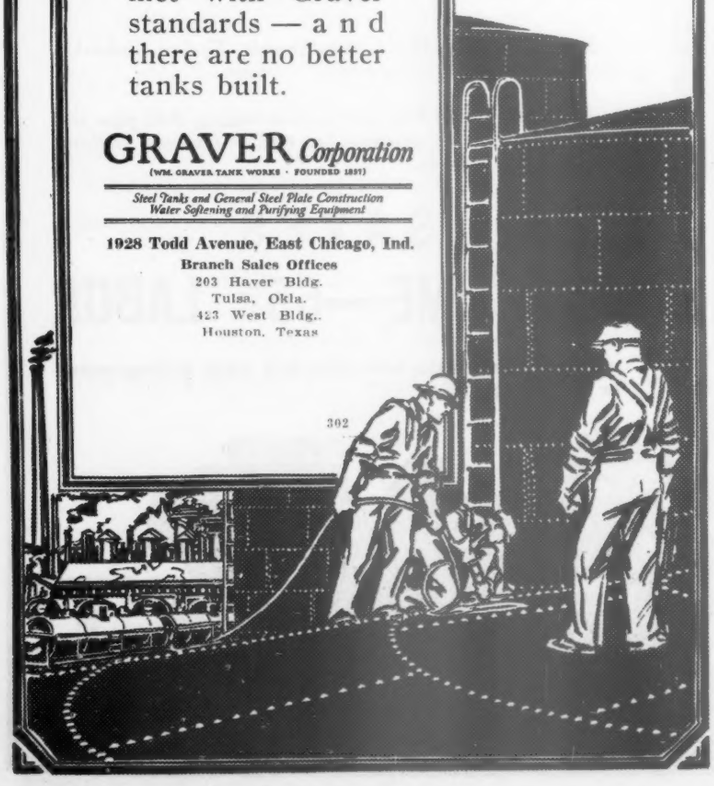

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the similarity there ceases. The field is expected to hold up for many years, even from its present producing sands.

**Future Prospects**

The foregoing is an outline of the results of work done in the developed fields of Montana, with a hasty survey of the conditions, geological and otehrwise. It is not a story of big returns and it offers little hope for the future. Cat Creek has had its day. Kevin-Sunburst does not hold forth much promise of better things than it has already done. Soap Creek is a heavy oil district where some money may be made by the controlling company if it can find a market for the product and an economical way to get it to the consumer. The fourth field, Elk Basin, can hardly be classed as a Montana field. It is the best-looking prospect of all.

The real story of Montana is that which gives the history of its wildcat developments and this will be told in a subsequent article, which will cover the various geological divisions of the State and give briefly the characteristics of each and of what the drill disclosed in all of them. The writer will conclude the first article with a resume of the refining and pipe line conditions in the State, as they are related to the developed fields.

**Pipe Line Situation**

With one exception the pipe lines serving the fields of the State are from field to railroad. The lines are purely carriers.

The Illinois Pipe Line, serving Elk Basin, is the one exception above noted. It runs from the field to the Midwest refinery at Greybull, Wyo. It is a 6-inch line. The main line does not enter Montana, but its gathering system serves that small portion of the field that lies in Montana. There is also a gasoline line from Elk Basin Field to Frannie, Wyo., through which casinghead gasoline is conveyed from the Midwest Refining Co.'s three-unit field plant. The oil line handles 1.800 to 2.000 bbls. a day. The gasoline line and the plant it serves are at present idle.

There are two pipe lines serving the Cat Creek Field, both running to Winnett, a distance of 20 miles air line. One of these, the Mutual pipe line, is operating. It is a 4-inch line and a common carrier subject to the State Railroad Commission. The Montana Independent Pipe Line Co. laid a 6-inch line to Winnet. It cost somewhere near $400 000. From January, 1922, to September, 1922, it ran only 72,023 bbls. of crude. It quit operating for want of business. The sheriff disposed of it to the Continental Supply Co. for $50.000. It is said that the Mutual now has control of it either through sale or lease. The first pipe line built from Cat Creek was the 2-inch Frantz line, which was not used after the Mutual's line was constructed. The Mutual Pipe Line Co. charges 13 cents per bbl. for running oil from the field to Winnett.

The Kevin-Sunburst Field is served by the Illinois Pipe Line. It is a carrier but not a buyer of oil. A rate of 20 cents from lease to tank car is charged. It began operating in September, 1922, and during the first year ran 319,000 bbls. The same company has a 6 inch line from Sunburst station to Coutts, in Alberta, Canada, where the Imperial Oil, Ltd., has a refinery. Little crude has been run through the latter line. Because of the widely scattered production in the Kevin area the pipe line system cannot be said to be a very profitable investment and some leases have been refused connection because of their remoteness. The system, which serves only a 3.800-bbl. production, consists of 10½ miles of 4-inch, 45 miles of 3-inch and 1 mile of 2-inch line and is said to have cost $190,-109. The system returned a profit of 7.4 per cent the first year after a 10 per cent depreciation charge had been made.

**All Tanks Full**

There is little steel storage in the State. The Ohio Oil Co. erected four tanks at Kevin, two of 80 000-bbl. and one of 37,500-bbl. and another of 35,000-bbl. capacity. All are full. The Mutual Oil Co. built an 80.000-bbl. tank, and it is full. The Mutual has two tanks at Cat Creek, presumably 55,000 bbls. each. The Western States Land & Development Co. has a 37,000-bbl. tank in the Soap Creek Field.

**One Important Gas Line**

There are five gas lines in Montana, only one of which is important. This is the line from the Elk Basin Field to Billings, which transports 20,000,000 feet of gas a day for consumption in Billings. It is about 70 miles in length. Havre, Hill County; Baker, Fallon County, and Shelby, Toole County, are supplied with gas for domestic use through short lines to nearby fields.

**Montana's Refineries**

Six refineries are operating within the State, not including skimming plants of 100-bbl. capacity located at Kevin. The skimming plants, it is understood, are for the manufacture of privately used gasoline.

There are two refineries at Lewistown. The Arrow Refinery is a well-equipped plant of 1,500 bbls. capacity, owned locally for the most part. It receives its crude from the Cat Creek Field, the deliveries being made through the Mutual's 4-inch pipe line to Winnett and tank car from Winnett to Lewistown. The product is marketed under the Arrow trade mark through its own marketing system, though the system does not include many filling stations.

The Lewistown Refining Co.'s plant at Lewistown is also a 1,500-bbl. plant. The Mutual Oil Co. is reputed to hold a substantial share in the ownership of the plant. Its crude supply comes from Cat Creek, though there have been times when the Mutual Oil Co. has provided it with crude from Wyoming. The Mutual company markets the refined products through many filling stations.

Cat Creek crude does not require a cracking process, therefore neither of the Lewistown plants possesses one. The recovery from Cat Creek crude from these refineries covering a period of a month would show 65 per cent gasoline, 13 per cent kerosene, 7 per cent distillate and 13 per cent fuel oil. There is no sulphur content. As a rule the distillate is combined with the fuel oil, as there is no local market for the former.

The Weowna Refinery, at Winnett, is a Montana corporation. Its capacity is approximately 800 bbls., but 1,100 bbls. a day has been put through an semi-refined. Cat Creek oil is purchased at a premium, delivery being made through the Mutual pipe line. It has some filling stations of its own and sells to other marketers.

The Yale or Miles City refinery at Miles City has a capacity of 500 bbls. a day. It buys its oil from the Ohio Oil Co. at Cat Creek and from other sources. The Pure Oil Co. distributes its product.

The Billings Refining Co.'s plant at Billings has had many ups and downs. It is not operating but the Lewistown Refining Co. has purchased the most of the stock and will put it in operation when it can purchase the remainder of the shares. This plant has a 500-bbl. capacity.

The refinery at Roundup is a very small one. Its throughput is said to be not over 25 bbls. a day.

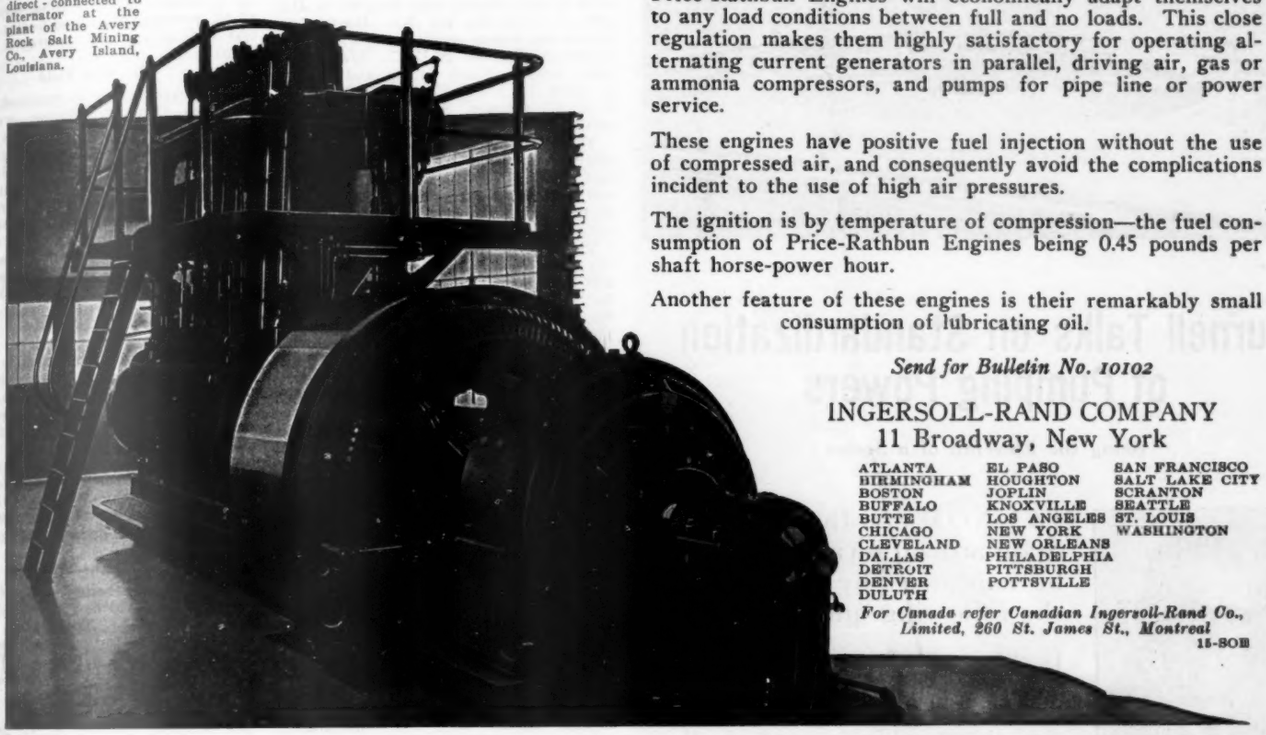
There are two refineries in Great Falls. The Sunburst Refining Co.'s plant is well built and completely equipped. It has a capacity of 2,500 bbls. a day, but runs about 1,000 to 1,200 bbls. Its supply is from the Kevin Field. Gasoline recovery will average around 23 per cent from this crude. Kevin oil makes an excellent fuel and there is a good demand for it if the supply could be relied on.

The other refinery in Great Falls is the American, with an 800-bbl. capacity but which has never been run to capacity. Most of its crude supply has come from the Kevin Field and it is said to be running between 200 and 300 bbls. a day on an average.

The maximum refining capacity of the State is around 8,500 bbls. a day., which is considerably in excess of the total crude production.

# Heavy Duty Oil Engines

900 H. P. Price-Rathbun Oil Engine direct-connected to alternator at the plant of the Avery Rock Salt Mining Co., Avery Island, Louisiana.



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These engines have positive fuel injection without the use of compressed air, and consequently avoid the complications incident to the use of high air pressures.

The ignition is by temperature of compression—the fuel consumption of Price-Rathbun Engines being 0.45 pounds per shaft horse-power hour.

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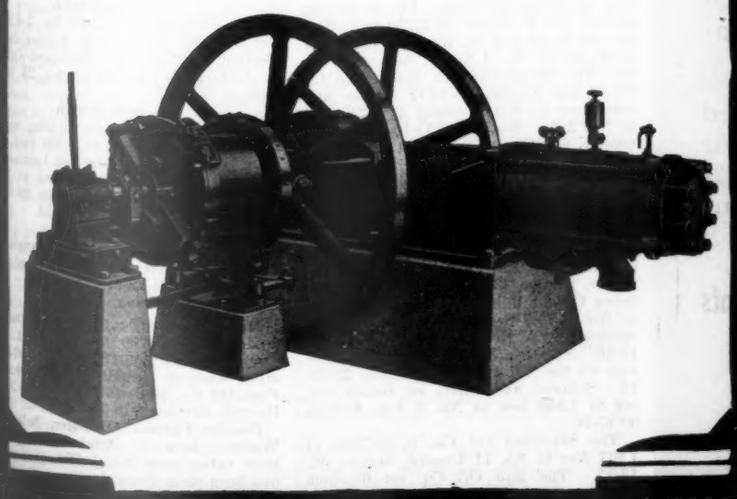

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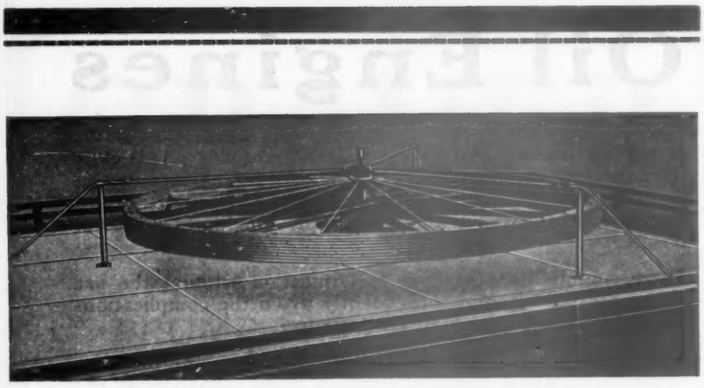

# Durnell Talks on Standardization of Pumping Powers

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## N. LOUISIANA-ARKANSAS

(Continued from Page 46)

ing at 1,470 feet in No. 1 Saxon, Section 32-15-16.

**Ouachita County Completions**

Seven producers were completed last week in this district with from 60 to 315 bbls. of production per day. Harry Anderson and others completed No. 1 J. E. Anderson, Section 26-15-17, flowing 60 bbls. through 2-inch tubing and packer at 2,425 feet. The Forest Oil Co.'s No. 6 C. E. Cramer, Section 22-15-16, is swabbing 80 bbls. at 2,295 feet.

The Gulf Refining Co. completed No. 2 Harrison, Section 30-15-16, flowing 315 bbls. through 2½-inch tubing at 2,275 feet and No. 2 Stringfellow, Section 29-15-16, flowing 135 bbls. through 2½-inch tubing at 2,310 feet.

The Smith Refining Co. completed No. 4 Patton, Section 31-15-16, flowing 100 bbls., estimated production at 2,265 feet. The Standard Oil Co. brought in No. 4 Solmson, Section 29-15-16, flowing 110 bbls. at 2,275 feet.

Staple and others completed No. 2 Smith, Section 36-15-17, flowing 100 bbls. through 2-inch tubing at 2,298 feet.

**Drilling Operations**

The Ouachita County area is showing a decided pickup in activity and a number of interesting wells are under way. A summary of operations shows 5 wells waiting on standard rig; 11 temporarily abandoned; 66 wells drilling; 6 rigging up; 23 derricks and 3 locations.

The Gulf Refining Co. is putting down a number of wells in the light oil territory. Its No. 1 Harrison stands 1,800 feet in oil and setting 2½-inch tubing at 2,299 feet, Section 30-15-16; No. 2 Meek stands 1,800 feet in oil and setting 2½-inch tubing at 2,290 feet, Section 19-15-16; set 10-inch casing and drilled to 1,270 feet in No. 3 Solmson, Section 29-15-16 and derricks up for Nos. 2 A-1 W. F. Patton, Section 31-15-16; sidetracking drill stem at 1,972 feet in No. A-4 Umsted, Section 33-15-15; set 10-inch casing at 290 feet in No. A-2 Werner, Section 36-15-17 and made location for No. 14 Werner, Section 32-15-16.

Hale and associates are drilling at 1,900 feet in No. 2 Ward, Section 25-15-17. The Houston Oil Co. is losing returns at 1,910 feet in No. 3 Patton, Section 31-15-16. The Humble Oil & Refining Co. is waiting on standard rig to pump No. 1 Ferris which now stands 1,000 feet in oil at 2,015 feet, Section 34-15-15; bailed liner and drilling water sand at 2,057 feet in No. F. A. & B. T. Laney, Section 31-15-15.

Leon and associates are down 500 feet in No. 1 Patton, Section 32-15-16. Lewis & Clark have set 6-inch casing at 2,240 feet in No. 5 Berry, Section 24-15-17. The Magnolia Petroleum Co. is bailing to test No. 4 Patton at 2,250 feet, Section 32-15-16 and set 6⅝-inch casing at 2,190 feet in No. 4 Smith, Section 31-15-16. The Mangus Oil Co. has rig up for No. 4 fee, Section 24-15-17. Myer and associates set 6-inch casing at 2,225 feet in No. 2 fee, Section 30-15-16. Murphy, trustee, set 10-inch casing at 50 feet in No. 3 Snyder, Section 34-15-15.

The Peer Oil Co. has rig up to deepen No. 3 Mullins, Section 27-15-16. This well was formerly completed as a 150-bbl. well at 2,060 feet.

The Phillips Petroleum Co. set 6⅝-inch casing at 1,970 feet in No. 3 Hearnsberger, Section 33-15-15. The Smith Refining Co. set 6-inch casing at 1,870 feet in No. 5 fee, Section 30-15-16 and has derrick up for No. 7 Patton, Section 31-15-16. Snowden & McSweeney have derrick up for No. 4 Taylor, Section 29-15-16. Solmson and others set 6-inch casing at 1,840 feet in No. 2 Fee, Section 30-15-16.

The Standard Oil Co. is drilling at 1,917 feet in No. 11 Umsted, Section 32-15-15. The Sun Oil Co. set 6⅝-inch casing at 2,200 feet in No. 3 Patton, Section 31-15-16. The Texas Co. is setting 2½-inch tubing at 2,275 feet in No. 1 Lagrone, Section 30-15-16 and drilling at 2,190 feet in No. 2; set 15½-inch casing at 50 feet in No. 1 F. L. Chandler in No. 2, Section 30-15-16; set 6¼-inch casing at 2,165 feet in No. A-4 Solmson, Section 29-15-16 and the same at 2,150 feet in No. B-2 Solmson, Section 32-15-16. It is down 1,270 feet in No. 1 Smith, Section 31-15-16.

Walker and associates are drilling at 2,205 feet in No. 1 Mangus, Section 24-15-17. Whittaker and others are rigging up to deepen No. 2 Hardin, Section 28-15-16, formerly completed making 1,000,000 feet of gas and a spray of oil at 2,030 feet.

**Stephens Field**

There were no wells completed in the Columbia County, Arkansas, area last week and very little drilling is under way. The Atlantic Oil Producing Co. is rigging up to drill No. 4 Jackson, Section 23-15-20, and is waiting on standard rig to pump No. A-1 Wepfer at 2,115 feet, corrected depth, Section 25-15-20.

Dowby and associates did not drill 6-inch plug in No. 1 Ray-Fullenweider, Section 12-17-22, at 2,170 feet. The Gulf Refining Co. has derrick up for No. 1 Buffington, Section 24-15-20.

Hosey-McDonald shut down No. 1 Haynes at 2,156 feet awaiting 8-inch casing, depth formerly reported 2,175 feet in error, Section 30-19-18.

The Magnolia Petroleum Co. set 6⅝-inch casing at 2,045 feet in No. 3 Hammond, Section 25-15-20.

**Ouachita County Area**

The Atlantic Oil Producing Co. completed No. 4 John Wepfer, Section 30-15-19, pumping 25 bbls. at 2,095 feet. The Mutual Oil Co. is rigging up No. 3 Hamilton, Section 19-15-19.

**Bellevue Field**

Bliss and Weatherbee set 6-inch casing and drilled to 420 feet in No. A-11 Fee, Section 15-19-11. The Humble Oil & Refining Co. is setting 6-inch casing at 360 feet in No. A-9 Bliss and Weatherbee, Section 10-19-11. Olmstead and others are drilling at 150 feet in No. A-14 Strange, Section 23-19-11. R. O. Roy is down 250 feet in No. 29 Scanland, Section 15-19-11. The Standard Oil Co. has derrick up for No. 2 Smith, Section 15-19-11.

The Standard Oil Co. completed No. 11 Smith, Section 15-19-11, pumping 60 bbls. at 395 feet.

**Caddo Parish**

The Dixie Oil Co. completed No. 18 Herndon, in the Pine Island district, Section 14-21-15, pumping 8 bbls. at 1,750 feet.

The Alabama Petroleum Co. is drilling at 3,550 feet in No. 1 Barlow, Section 5-21-15. Brewer and Sewall are down 2,560 feet in No. 1 Sharp, Section 15-18-16. The Caddo Western Oil Co. tested No. 1 Gardner & Blades dry with a small show of dead oil and no gas at 2,270 feet and now making arrangements to drill deeper, Section 2-16-15.

**Claiborne Parish**

The Ohio Oil Co. tested No. 1 Crump dry at 2,848 feet, and is drilling deeper, Section 13-23-8. The Standard Oil Co. is drilling at 715 feet in No. 25 Shaw, Section 30-21-7.

**De Soto Parish**

Ulrey and others are bailing to test No. 1 Frost Johnson at 1,800 feet, Section 3-11-15, 7 miles east of Logansport. C. R. Tyrell set 6-inch casing at 2,070 feet in No. 1 Poter, in Section 22-13-13, 2 miles southeast of Mansfield.

**Red River Parish**

The Fortuna Oil Co. is arranging to drill No. 16 Armistead deeper from 2,965 feet, Section 24-12-11.

**Louisiana Wildcats**

Bienville Parish: The Ohio Oil Co. is drilling at 2,700 feet in No. 1 Bodcaw Lumber Co., Section 19-16-6, 3 miles west of Bienville. The Arkansas Fuel Oil Co. is down 570 feet in No. 1 Harrell, Section 6-18-5.

Bossier Parish: Bolinger, Sales and Walker, formerly Atlas Drilling Co., have taken over No. 1 Bolinger, which has been shut down for some time, and are drilling at 1,310 feet, Section 3-22-12.

Davis & Burch are down 800 feet in No. 1 Hodges, Section 22-16-12. Shannell and others plugged No. 1 Fee back to 2,450 feet and are waiting 6-inch casing to set, total depth 2,500 feet, Section 22-17-12, between Shreveport and Elm Grove.

Lincoln Parish: The Four Creek Oil Co. is drilling at 1,725 feet in No. 1 Colvin, Section 35-20-3w. Goff and Green have derrick up for No. 1 Simmons, Section 25-18-1w. The Middle Fork Syndicate tested No. 1 McKay dry at 2,362 feet and is arranging to drill deeper, Section 9-20-3w.

Morehouse Parish: Morris, Trustee, completed No. 1 Rogers, Section 15-20-5, estimated making 14,000,000 feet of gas at 2,285 feet.

The Amalgamated Oil Co. is drilling at 1,700 feet in No. 1 Southern, Section 19-20-5e. The Carson Carbon Co. is drilling at 2,200 feet in No. 1 Irwin, Section 28-20-5e. Ladel and others are shut down, 2,285 feet, in No. 16 Fee, Section 22-20-5e. The Richland Oil & Gas Co. is down 1,800 feet in No. 1 Chess Wymond, Section 32-19-6e.

Ouachita Parish: The Atlas Oil Co. is bailing to test No. 2 West Virginia Timber Co. at 2,450 feet, Section 3-18-5e. The Consumers Gas Co. is drilling at 1,650 feet in No. 3 Riche, Section 32-19-5e. J. M. Huber has set 6-inch casing at 2,200 feet in No. 4 Fee, Section 5-18-5e.

The Magnolia Carbon Co. is drilling at 2,040 feet in No. 2 Fee, Section 18-20-5e. The Southern Carbon Co. has set 12½-inch casing at 130 feet in No. 7 Fairbanks, Section 5-19-4e; drilling at 2,230 feet in No. 25 Fee, Section 27-19-5e and set 12-inch casing at 170 feet in 26 Fee, Section 7-19-5e.

The Standard Carbon Co. is drilling at 2,240 feet in No. 2 Puckett, Section 22-19-5e. The West Virginia Land & Timber Co. set 12½-inch casing at 175 feet in No. 3 Fee, Section 4-18-5e.

**Union Parish**

The Arkansas Natural Gas Co. is drilling at 1,190 feet in No. 1 Templeton, Section 19-23-1e. Evans and others set 10-inch casing at 150 feet in No. 1 Cole, Section 16-22-2e, 10 miles northeast of Farmerville.

The Gulf Refining Co. is drilling at 25 feet in No. 1 Security Trust, Section 23-23-1w. It is drilling at 660 feet in No. 1 Green with 10-inch casing set, Section 19-23-1e. The Neddo Petroleum Invincible Corp. is down 1,800 feet in No. 1 Smith, Section 2-23-3w, 12 miles northwest of Farmerville.

The Ohio Oil Co. is down 1,960 feet in No. 1 Dubach Lumber Co., Section 15-20-1w, 4 miles southwest of Farmerville. The Roxana Petroleum Corp. is down 1,360 feet in No. 1 Smith, Section 30-22-2w, 12 miles northwest of Farmerville. Turner and others set 12½-inch casing at 150 feet in No. 1 Payne, Section 30-21-1w, 6 miles west of Farmerville.

Webster Parish: The Fortuna Oil Co. is drilling at 1,115 feet in No. 1 Pruitt, Section 17-21-9, and are down 1,790 feet in No. 1 Statton, Section 31-22-10.

The Humble Oil & Refining Co. is moving in rig to drill No. 1 Merritt, Section 13-21-10. This well was formerly completed as a 30,000,000-foot gasser at 2,538 feet. O'Brien and others are down 2,300 feet in No. 1 Doles, Section 26-21-9. Smitherman and McDonald set 12½-inch casing and drilled to 105 feet in No. 1 Baucher, Section 21-23-11. The Standard Oil Co. is drilling at 1,725 feet in No. 1 Woodward and Walker, Section 16-17-8.

Stock and Eggers have derrick up for No. 1 Bible, Section 8-20-9. The Triangle Drilling Co. has set 12½-inch casing at 220 feet in No. 1 Merritt, Section 14-21-10. The White Oil Corp. is down 50 feet in No. 1 Gleason, Section 31-22-9.

**Arkansas Wildcats**

Calhoun County: The Sure Oil Co. is drilling at 2,600 feet in No. 1 Adams, Section 29-12-12.

Grant County: The Texas Co. is down 2,065 feet in No. 1 Chicago Land & Timber Co., Section 14-6s-13w.

Hempstead County: The Columbus-Hope Oil Co. is drilling at 2,110 feet in No. 2 King, Section 24-11-25. Johnson and others are down 1,320 feet in No. 1 State, Section 12-13-27. Myers and others are down 1,800 feet in No. 1 Nichols, Section 17-11-23.

Jefferson County: The De Cou Oil Co. has gone back into No. 1 Hinsley, which was abandoned last April at 823 feet and are arranging to test at 1,047 feet, Section 7-3-10.

Nevada County: Dee and associates have derrick up for No. 1 Johnson, Section 27-14-21. The Kenark Oil Co. has set 10-inch casing and drilled to 700 feet in No. 1 White, Section 11-13-21.

## CALIFORNIA FIELDS

(Continued from Page 42)

well on the structure and proved a surprise by extending the limits of the field several blocks west.

Both the northern and southern parts of the field benefited by the developments during the week. In the southeastern section, the Crown City Oil Co.'s No. 1 Graham, a recompletion, registered the highest initial output of wells put on production. Number 1 Graham was redrilled and deepened from 3,799 feet to 4,990 feet and responded with a daily output of 2,250 bbls. It was finished with a 4½-inch oil string and the production, testing 30.8 degrees, is flowing through two ½-inch beans under a pressure of 410 pounds. The Bear State Oil Co. and the Hub Oil Co. also appear on the completion list but brought in somewhat smaller wells. The former's No. 1 Welton put 490 bbls. of clean 23.8 gravity oil into the tanks during the first 24 hours, while the latter's No. 2 Beck put 355 bbls. of 23.4 gravity oil into storage during a like period. Number 1 Welton, drilled to 3,900 feet, is flowing through a ¾-inch bean under a pressure of 150 pounds, while No. 2 Beck, finished at 4,447 feet, is flowing through ½-inch bean under a pressure of 110 pounds. Several deep wells were completed during the week and, although several were not actually placed on production, good wells are expected when they are finally finished. The Marine Oil Corp. has redrilled and deepened its No. 18 to 5,243 feet, while No. 9 Municipal of the Jergins Trust is being prepared for a test at 5,299 feet. The cement in the latter well has just been drilled out and it looks wet. If this is the case it will, of course, have to be recemented and the outcome of this deep northwest well will not be known for a few weeks. The Henderson Petroleum Syndicate is also going after deep production and has started to deepen its No. 2 Dodge, now at 4,470 feet. The California Drilling Co. has taken over a contract to redrill and deepen the Bolsa Chica Oil Co.'s No. 3, now at 4,250 feet, and unless something unusual develops

(Continued on Page 114)

## WEATHER FACTOR IN GROUP 3 MARKET

(Continued from Page 19)

confined to the regular customers of the refiners.

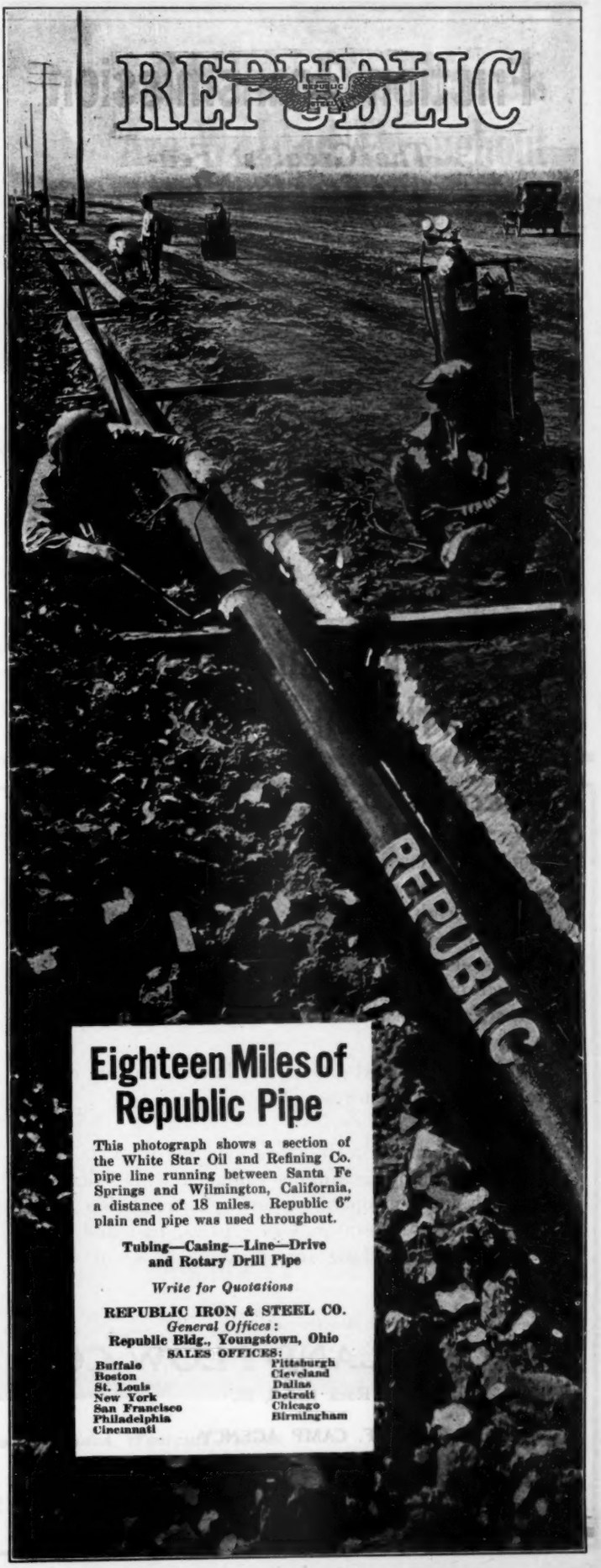
So far as Group 3 is concerned, the fuel oil situation might be termed "tight." Buyers find very little fuel oil of any grade offered for spot shipment. However, the price has not been advanced as it was following the first two crude price raises. The spot price is now approximately the same as the contract basis. The intrastate demand continues strong and in these sales the seller is getting from 10 to 15 cents more a barrel than on interstate shipments. Gas oil was advanced ⅛ to ¼ cent, following the crude advance Saturday.

**Natural Gasolines and Blends**

Natural gasolines and blends are unsettled as the straight run products. The demand for blends has fallen off. Prices are fairly firm, however, because of the advancing prices of blending material. A majority of the natural gasoline manufacturers advanced their prices during the week and state they are moving their usual quantities. Some of the smaller plants have material to offer under these prices and buyers for resale are having no difficulty in covering their needs.

**Neutrals**

It is known that Cosden & Co. expects to advance its prices on practically all grades of neutrals 1 cent. This company took like action following the other crude changes and a majority of the other manufacturers of neutrals took similar action.


**Eighteen Miles of Republic Pipe**

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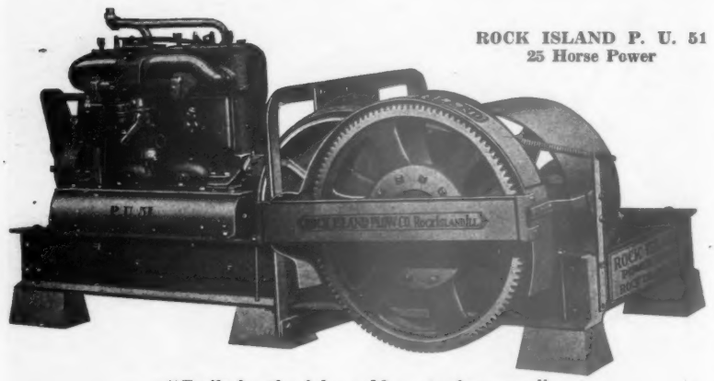

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## EASTERN FIELDS

(Continued from Page 52)

In Section 10, Rush Creek Township, Fairfield County, the Monrana Oil & Gas Co. completed and shot in the Clinton sand No. 5 on the Levi Kennedy farm, good for 10 bbls. a day. In the same section and township, the Ohio Falls Oil Co.'s test on the B. F. Seifert farm is a duster in the same formation. This location is 1,600 feet north of Weirck & Nolder's first test on the Laura E. Strayer farm. In the same township, Louis Ruff & Son have a rig up on the Milton Lorimer farm. In Section 2, Somerton Township, Belmont County, 1½ miles north of production, William Shaffer & Son have a duster at a test on the Sarah E. Moore farm.

In Section 26, Coal Township, Perry County, the Petty Petroleum Co. completed and shot in the Clinton sand a second test on the Sunday Creek Coal Co.'s property. The well produced 18 bbls. the first 24 hours. The Sunday Creek Coal Co.'s No. 113 on this property, completed a short time ago, is holding up at 20 bbls. a day. In Madison Township, Licking County, the Ohio Fuel Supply Co. has moved in a drilling machine to a location on the L. Lake farm. Four additional locations have been made on this farm.

**Southwest Pennsylvania**

Two miles west on Nineveh, Morris Township, Greene County, the Greensboro Gas Co. got a light gasser when it drilled its test on the S. H. Wise farm through the fourth sand. On Shannons Run, 3 miles northwest of Mt. Morris, the Carnegie Natural Gas Co. has drilled a test on the Ollie Lemley farm into the Big Injun sand. The hole filled up 1,000 feet with fluid and is estimated to be good for 20 or 25 bbls. a day. It has been many months since a well was drilled in in the southwest Pennsylvania fields and showed as good as this. In Wayne Township, the Willis Oil Co.'s test on the Strosnider heirs' farm is a fair gasser in the Big Injun sand. In Aleppo Township, the Big Five Oil & Gas Co. is now through the fifth sand at a test on the James Whipkey farm and only a light show of oil. The total depth is 3,374 feet. On Bissett Run, Springhill Township, Covert Brothers have a light gasser in the same formation at a test on the John Snyder farm. In the same township, the Taylor Oil & Gas Co. has a 3-bbl. pumper at No. 3 on the Taylor heirs' farm. On Nettle branch of the Pennsylvania Fork of Fish Creek, in Springhill Township, the Keystone Petroleum Co. has a light gasser in the Big Injun sand, David Dunkate farm. In Wayne Township, Roy Clovis & Co. have a fair gasser in the Gordon sand at a test on the W. H. Kent farm.

In Morris Township, Greene County, 2 miles west of Nineveh, the Greensboro Gas Co. has completed a test on the S. H. Wise farm, a light gasser in the fourth sand. On the Pennsylvania fork of Fish Creek, Springhill Township, the Little Four Oil & Gas Co.'s test on the David Lemley farm is dry in all sands. In the same township, the Carnegie Natural Gas Co.'s second test on the Jesse Anderson farm is a light gasser in the fourth sand. On Wagon Road Run the Bennett Oil & Gas Co.'s second test on the W. L. Bennett farm is a light gasser in the Big Injun sand. In the borough of New Freeport, Bissett, Snyder & Co. completed at 3,500 feet a test on the George Bissett lot, a light gasser. Near Ligonier, Westmoreland County, the Peoples' Natural Gas Co. drilled through the cement at its No. 2 deep well on the Booth-Flinn property. After drilling several feet into a shale formation and fearing another cave, decided to cement the cave rather than take chances of sticking the tools. It will now be several weeks before they resume drilling.

**Gas Shortage Caused Suffering**

The recent visitation of zero weather to Pittsburgh and vicinity forced the natural gas companies supplying gas to consumers in Pittsburgh and sourrounding towns, to shut off all industrials and divert the available supply to domestic consumers. Lack of gas caused much hardship in towns along the Ohio River. Some of the gas companies failed to conserve their gas during the fall and last summer and as a consequence they had no extra supply to meet an emergency such as experienced during last week.

## ADVANCES FEATURE REFINED MARKETS IN EAST

(Continued from Page 32)

both Gulf Coast and Mexican grades slumped considerably.

The following table shows estimated daily average receipts of crude and refined oil at Atlantic Coast ports by water from the Gulf and Pacific Coasts of the United States, and imports from Mexico and other countries, for the past two weeks; also monthly record back to July 1, 1923 (figures in barrels):

| | Week Ended Feb. 1 | Jan. 2 |
|---|---|---|
| Gulf Coast | 177,000 | 120,000 |
| Pacific Coast | 180,000 | 127,000 |
| Mexico and other imports | 52,000 | 106,000 |
| Total daily average | 409,000 | 353,000 |

| Monthly Record | Gulf Coast | Pacific Coast | Imports | Total |
|---|---|---|---|---|
| Jan., 1924 | 121,000 | 163,000 | 79,000 | 363,000 |
| Dec., 1923 | 184,000 | 153,000 | 119,000 | 456,000 |
| November | 186,000 | 141,000 | 109,000 | 436,000 |
| October | 200,000 | 164,000 | 134,000 | 498,000 |
| Sept. | 165,000 | 146,000 | 109,000 | 420,000 |
| August | 176,000 | 170,000 | 110,000 | 456,000 |
| July | 160,000 | 138,000 | 116,000 | 414,000 |

Total receipts at Atlantic Coast ports during January were 11,280,000 bbls. compared with 14,136,000 bbls. in December.

## DIFFICULT DRILLING IN THE PERSIAN GULF

OIL CITY, Pa., Feb. 4.—Walter Lobaugh, a former resident of Oil City, is now at Hinjam, Kishm Island, in the Persian Gulf, where he is working for the Anglo-Persian Oil Co. A recent letter from him gives some idea of the difficulties encountered in drilling work there. It follows:

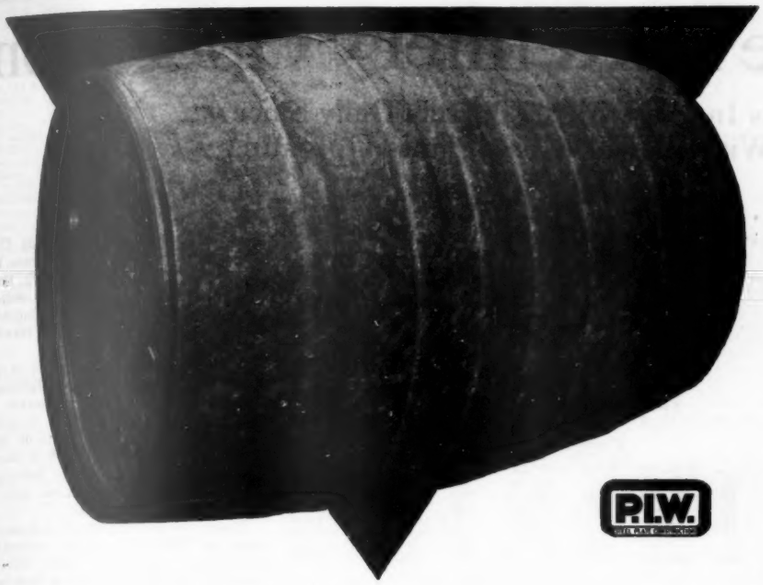
"There are seven white men and one white woman on the island now. The superintendent's wife is there. Just to show you what a small world this is, I know the driller who is here. He was up North with Frank Stover and his name is Dickeson. There are three drillers here, one man learning to be a driller, one who runs the water and ice plant, the tool pusher and the superintendent and his wife. Then we have about 50 natives. The island is about 60 miles long and 10 miles wide and all sandy mountains.

"There are about 10 buildings here in camp, one bungalow for the drillers, a little house for the superintendent and his wife, an ice and water plant, a company store, a general office and the rest are native houses.

"There are two wells here. They are about 3 miles from camp. Both of them are Canadian rigs, much different from our standard rigs. One well is 3,305 feet and the other one is 150 feet. They have been here 10 years now drilling the deep one and a year and a half on the other. They got some oil in the old well at 1,600 feet and that is what we are going to test with the new well. They are going as deep as they can with the old one. They are shut down most of the time for fuel oil."

## SAFETY COUNCIL MEETING

Director H. W. Boggess, of the Oklahoma division of the recently organized Petroleum Safety Council of the Mid-Continent Oil & Gas Association, has called a meeting of safety representatives and employers of labor for 2 o'clock Friday afternoon, February 8, at association headquarters, 505 Cosden Building, Tulsa, Okla. Representatives of every branch of the industry, including casing crews, and every community where oil operations are carried on are invited. It is desired to ascertain the number of employes, suitable place for entertainment in each district, so that safety motion picture programs can be outlined and to have the work begin early this month.

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# Another Increase In Refinery Operations

## Mid-Continent Runs Increase 31,100 Barrels Daily Since First of the Year With Eleven More Plants Operating

By C. O. Willson

The total crude runs to stills of Mid-Continent refiners on February 1 were 31,000 bbls. greater than on January 1, with every area showing an increase with the exception of Arkansas, which suffered a loss of 2,250 bbls. daily. The increase, which was one of the largest in the history of the area, brought the total runs to 334,325 bbls. daily on February 1. This means that, considered as a whole, Mid-Continent refiners in so far as actual runs are concerned have regained about all they lost during the year 1923. Taking into consideration the new refining capacity in the Powell area the total refinery runs at the present time are in fact 2,434 bbls. greater than a year ago, as shown by the accompanying Table 3.

The large increase in Mid-Continent refinery runs was not expected although it has been felt for some time that many plants would materially increase their output by spring. However, January was not a favorable month from a refined market standpoint despite advances in practically all products, when it is considered that crude advances were even greater with the further fact that several weeks must intervene before the spring and summer demand for gasolines will be under way.

### Majority of Runs Increased

It would have been reasonable to assume in fact that under these conditions refiners would curtail their runs as much as possible, accumulating crude stocks rather than refined products, as many are doing. However, as has been the case often in the past refiners have not only been vying with one another to secure the crude supply but after they have obtained it, they have in most instances run it through their stills.

The increased runs are due to several developments. In the first place, a majority of the plants increased their runs. A comparison of the February 1 and January 1 reports shows that 67 plants increased their runs during the month while 41 were running less crude through their stills. The increases not only outnumbered the decreases but a comparison shows that while the reductions were in practically all instances small, several large increases were made, representing, in a few instances, more than twice the runs on January 1.

The February review also shows that a surprising number of plants started up which were shut down on January 1. Counting the new plants which have been added, 15 plants which were shut down the first of the year were operating February 1 with only 4 plants shut down during that period. The month to month reviews always show a few plants shutting down or resuming operations, but often the former offset the latter so that there is no difference in the total number of plants operating. The fact that this situation did not apply during the past month together with the increases in runs at several of the larger plants accounts for the total increase for the entire area.

Most of the plants which resumed operations have a comparatively small output. The same is true of the plants which were shut down. As previously indicated, the resumption of operations in practically all cases can probably be accounted for as a development of the upward trend in refined prices. Just how long they will continue to operate will depend entirely on market conditions. In most cases the owners are not bound by contracts either as to crude supply or refinery output to keep their plants operating and if refined markets do not develop as expected they will probably be shut down again in the near future.

RECAPITULATION OF MID-CONTINENT REFINERIES

Table No. 1

Based on operations of plants which have been in operation during the past year.

| | No. of Plants | Capacity | Plants Op. Feb. 1 | Daily Runs Feb. 1 |
|---|---|---|---|---|
| Oklahoma | 68 | 290,500 | 53 | 155,250 |
| North Texas | 49 | 165,700 | 38 | 72,725 |
| Kansas | 32 | 121,900 | 24 | 71,800 |
| North Louisiana | 7 | 28,300 | 6 | 23,550 |
| Arkansas | 14 | 33,950 | 6 | 11,000 |
| Total | 170 | 640,350 | 127 | 334,325 |

Table No. 2

Based on operations of all plants as of February 1, 1924, and January 1, 1924.

| | No. of Plants | Capacity | Plants Op. Feb. 1, '24 | Daily Runs Feb. 1, '24 | Plants Op. Jan. 1, '24 | Daily Runs Jan. 1, '24 | Daily Inc. in Runs |
|---|---|---|---|---|---|---|---|
| Oklahoma | 108 | 371,400 | 53 | 155,250 | 50 | 137,575 | 17,675 |
| North Texas | 72 | 223,850 | 38 | 72,725 | 32 | 64,350 | 8,375 |
| Kansas | 43 | 136,100 | 24 | 71,800 | 22 | 66,800 | 5,000 |
| North Louisiana | 19 | 51,950 | 6 | 23,550 | 5 | 21,250 | 2,300 |
| Arkansas | 17 | 37,950 | 6 | 11,000 | 7 | 13,250 | *2,250 |
| Total | 259 | 821,250 | 127 | 334,325 | 116 | 303,225 | 31,100 |

*Decrease.

Table No. 3

Based on operations of all plants as of February 1, 1923, compared to February 1, 1924.

| | Feb. 1, '23 No. of Plants | Capacity | Plants Op. Feb. 1, '23 | Daily Runs Feb. 1, '23 | Daily Dec. Over. Feb. 1, '24 |
|---|---|---|---|---|---|
| Oklahoma | 103 | 334,900 | 58 | 173,655 | *18,400 |
| North Texas | 63 | 198,300 | 30 | 64,900 | 7,825 |
| Kansas | 39 | 104,100 | 24 | 69,550 | 2,250 |
| North Louisiana | 19 | 38,350 | 5 | 15,800 | 7,750 |
| Arkansas | 14 | 24,010 | 7 | 7,986 | 3,014 |
| Total | 238 | 699,660 | 124 | 331,891 | 2,434 |

*Increase.

### Oklahoma

The largest plant to resume operations was that of the Oklahoma Producing & Refining Corp., located at Muskogee. This plant, which is the oldest in the State, has been shut down for several months. It is now being operated largely under the same management as the Pure Oil Co. plants located at Cushing and Ardmore. The latter company during the past year purchased a controlling interest in the Oklahoma Producing & Refining Corp. The plant of the Cushing Refining & Gasoline Co. has also resumed operations. This plant was temporarily closed down the first of the year. Small plants in the State which started up after the first of the year include Oil State Refining Co., Allen; Pauline Refining Co., Hampton; Peppers Gasoline Co., Covington, and the Tonkawa Petroleum Co. at Tonkawa. The skimming capacity of all these plants is small.

The plant of the Grandfield Oil & Refining Co. is shut down. This plant was shut down in November but at the first of the year was reported running a small amount of crude for a few days. It is known that the management expects to resume operations some time in March. The plant of the Turley Refining Co. of Oklahoma City is the other plant in the State to be shut down. It was only handling a small amount of crude previous to the shutdown.

The report shows several important changes in the output of plants already operating. The Riley Petroleum Co. has leased the H. F. Wilcox Oil & Gas Co. plant located at Bristow. This plant in the January report was listed under the name of the Indian Oil Corp., as that company had obtained the lease which was later turned over to the present owners. The Marland Refining Co. at Ponca City had the largest single increase in refinery output, its runs now being 12,000 bbls. The Empire Refineries, Inc., with three plants has also increased its runs 2,250 bbls. and the throughput of the Cosden & Co. plant, located at West Tulsa, is now 25,000 bbls., an increase of 3,000 bbls. over January 1.

The Champlin Refining Co. has boosted its runs from 2,000 to 3,600 bbls. and Bolene Refining Co., located at the same point, is running 4,250 bbls. The Sun Oil Co. had doubled the crude runs of its Yale plant. The Sinclair runs decreased 1,250 bbls.

### North Texas

Twenty-six plants in North Texas increased their runs while only 11 decreased. The Lone Star Oil & Refining Co.'s plant located at Wichita Falls is handling 1,000 bbls. of crude daily after a shutdown of several months. Other plants to resume operations include H. E. Doner, Burkburnett; Bridgeport Refining Co., Bridgeport. The new plant of the Cross Refining Co. at Corsicana is now handling 1,500 bbls. of crude daily and has been added to the list. Two other small plants have been added. They are the Prairie Refining Co., located at Grand Prairie between Dallas and Fort Worth, and the Paris Refining Co., located at Paris. The output of both plants is for local consumption and their crude runs for that reason are very small.

The Magnolia Petroleum Co. is operating the plant of the Trinity Refining Co., located at Dallas. This makes three plants which the Magnolia is operating in this section. The plants of the Megargel Refining Co., located at Megargel, and that of the Hagaman Refining Co., located at Tiffin, have been shut down.

### Kansas

There are no important changes in the runs of Kansas plants, although the total runs increased 5,000 bbls. The plant of the Sterling Oil & Refining Co., located at Wichita, is running 1,850 bbls. of crude daily. Its operations were confined to rerun the first of the year. The Derby Oil & Refining Co. has doubled the runs of its plant located at the same point. The plant of Marshall & Co., located at Sheffield, Mo., is again operating.

### Arkansas

The drop in Arkansas runs was due to the change in the operations of major plants. The Lion Oil & Refining Co. has reduced its runs from 7,500 to 5,800 bbls., and the Root Refineries from 2,000 to 800 bbls. The Kettle Creek Refining Co., the other major plant in that area, decreased its runs 200 bbls. The decrease in runs in that area are said to be due to the difficulty in obtaining crude supplies.

### North Louisiana

One plant has been added to the few operating in North Louisiana. The Louisiana Oil Refining Corp. is operating its second plant which it recently purchased from the Louisiana Petroleum Products Co. The new plant manufactures lubricating oils. Three plants in the area increased their runs slightly so that the total throughput is 2,300 bbls. greater than on January 1.

REFINING OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year.)

| Name and location— | Daily Capacity | Crude Runs February 1 | Crude Runs January 1 |
|---|---|---|---|
| Allied Refining Co., Okmulgee | 2,000 | 1,200 | 1,000 |
| Anderson-Prichard Oil Co., Cyril | 1,200 | 1,100 | 1,000 |
| Barnsdall Refining Co., Barnsdall | 5,000 | 3,500 | 3,500 |
| Bolene Refining Co., Enid | 6,000 | 4,250 | 3,400 |
| Bristow Gasoline & Supply Co., Bristow | 1,000 | 900 | 1,000 |
| Cameron Refining Co., Ardmore | 4,000 | 2,100 | 2,750 |
| Canfield Refining Co., Yale | 500 | 75 | 75 |
| Champlin Refining Co., Enid | 15,000 | 3,600 | 2,000 |
| Coleman-Nelson Corp., West Tulsa | 2,000 | 500 | 600 |
| Constantin Refining Co., West Tulsa | 4,500 | Shut down | Shut down |
| Constantin Refining Co., Devol | 10,000 | Shut down | Shut down |
| Cosden & Co., West Tulsa | 35,000 | 25,000 | 23,000 |
| Cushing Refining & Gasoline Co., Cushing | 1,500 | 1,400 | Shut down |
| Cushing Refining & Gasoline Co. (formerly Modern Refining Co.), Blackwell | 1,000 | 850 | 200 |
| Daisy Bell Petroleum Co., Wilson | 2,000 | 150 | 250 |
| Empire Refineries, Inc., Cushing | 7,000 | 4,500 | 3,500 |
| Empire Refineries, Inc., Okmulgee | 2,500 | 2,500 | 2,500 |
| Empire Refineries, Inc., Ponca City | 6,000 | 5,250 | 4,000 |
| Fairmont Refining Co. (Champlin) Fairmont | 2,500 | Shut down | Shut down |
| Gilmer Oil Co. (formerly Mid-Continent Refining Co.), Ringling | 800 | Shut down | Shut down |
| Glen Braden Refining Co., Perry | 1,000 | Shut down | Shut down |
| Globe Oil & Refining Co., Blackwell | 5,000 | 1,200 | 1,200 |
| Grandfield Oil & Refining Co., Grandfield | 3,000 | Shut down | 1,400 |
| Hewitt Refining Co., Hewitt | 2,000 | 1,100 | 1,250 |
| Illinois Oil Co., Cushing | 3,000 | 1,400 | 550 |
| Imperial Refining Co., Ardmore | 7,000 | 6,000 | 6,000 |
| Indiahoma Refining Co., Okmulgee | 9,000 | Shut down | Shut down |
| Inland Refining Co., Cushing | 3,000 | Shut down | Shut down |
| Johnson Oil Refining Co., Cleveland | 3,500 | 2,750 | 2,200 |
| Local Refining Co. (formerly Atwood Refining Co.), Oklahoma City | 1,000 | 450 | 600 |
| Lorraine Refining Co. (formerly Illinois Refining Co.), Bristow | 4,000 | 3,000 | 2,500 |
| Marland Refining Co., Ponca City | 15,000 | 12,000 | 7,000 |
| Maud Oil & Refining Co., Maud | 400 | Shut down | Shut down |
| Navajo Refining Co. (Polar), Sapulpa | 2,000 | 700 | 750 |
| Nyanza Refining Co., Wilson | 3,500 | 1,100 | 650 |
| Oil State Refining Co., Enid | 2,500 | 450 | 800 |
| Oil State Refining Co., Allen | 600 | 425 | Shut down |
| Omar Ref. Co. (formerly Garber Ref.) Garber | 2,500 | 1,200 | 1,200 |
| Oklahoma Prod. & Ref. Corp., Muskogee | 2,500 | 2,000 | Shut down |
| Pawhuska Refining Co., Pawhuska | 1,000 | Shut down | Shut down |
| Pauline Refining Co., Hampton | 1,200 | 450 | Shut down |
| Phillips Co. (Waite), Okmulgee | 6,000 | 5,000 | 4,500 |
| Peppers Gasoline Co., Covington | 1,000 | 250 | Shut down |

| | | | |
|---|---|---|---|
| Pierce Oil Corp., Sand Springs | 9,000 | 4,750 | 4,700 |
| Producers & Refiners Corp., West Tulsa | 7,000 | 5,500 | 4,500 |
| Producers & Refiners Corp., Blackwell | 3,000 | 2,800 | 1,000 |
| Pure Oil Co., Ardmore | 7,000 | 2,800 | 3,000 |
| Pure Oil Co., Cushing | 6,500 | 5,000 | 5,500 |
| Riley Petroleum Co. (Wilcox Oil & Gas) | 1,000 | 500 | 650 |
| Rock Island Refining & Pipe Line Co., Duncan | 1,000 | 1,000 | 1,400 |
| Sapulpa Refining Co., Sapulpa | 7,000 | Shut down | Shut down |
| Shaffer Oil & Refining Co., Cushing | 6,500 | 6,000 | 5,400 |
| Southwestern Oil Corp. (operated by Bolene Refining Co.), Enid | 1,800 | Shut down | Shut down |
| Sun Oil Co., Yale | 4,000 | 2,000 | 1,000 |
| Sinclair Refining Co., Cushing | 8,000 | 5,750 | 7,500 |
| Sinclair Refining Co., Muskogee | 1,000 | 700 | 700 |
| Sagamore Oil Corp., Granfield | 2,000 | 1,750 | 1,800 |
| The Texas Co., West Tulsa | 10,000 | 7,750 | 7,750 |
| Texas Pacific Coal & Oil Co., Wynnewood | 3,000 | 1,600 | 2,100 |
| Tidal Refining Co., Drumright | 4,500 | 3,000 | 3,000 |
| Transcontinental Oil Co., Boynton | 3,000 | 1,000 | 1,100 |
| Transcontinental Oil Co., Bristow | 5,000 | 5,000 | 3,500 |
| Tonkawa Petroleum Co., Tonkawa | 2,500 | 250 | Shut down |
| Travis-Center Refining Co. (Western Oil Sales Co.), Beckett | 1,500 | 900 | 900 |
| Turley Refining Co. (formerly Home Petroleum Co.), Oklahoma City | 2,500 | Shut down | 150 |
| Union Oil & Refining Co., Grandfield | 2,000 | Shut down | Shut down |
| Wagoner Refining Co., Wagoner | 500 | Shut down | Shut down |
| Yale Oil Corp., Yale | 1,500 | 750 | 750 |
| *Total | 371,400 | 155,250 | 137,575 |

*Includes all plants.

### REFINING OPERATIONS IN NORTH TEXAS

(Plants which have been in operation during the past year.)

| Name and location— | Daily Capacity | Crude Runs February 1 | Crude Runs January 1 |
|---|---|---|---|
| American Oil Corp., Pioneer | 2,500 | 200 | 150 |
| American Refining Co., Wichita Falls | 8,000 | 5,200 | 4,600 |
| Boner, H. E., Burkburnett | 700 | 200 | Shut down |
| Bridgeport Refining Co. (formerly Associated P. & R.) Bridgeport | 1,000 | 100 | Shut down |
| Buffalo Refining Co., Sherman | 500 | 250 | 150 |
| Clayton Oil & Refining Co., Dallas | 3,500 | 2,500 | 3,000 |
| Cross Refining Co., Corsicana | 2,000 | 1,500 | Under const. |
| Crystal Petroleum Co., Burkburnett | 1,000 | 300 | Shut down |
| De Leon Refining Co., De Leon | 1,000 | 350 | 400 |
| Eastland Pioneer Oil & Refining Co. (formerly Liberty Refining Co.), Cisco | 1,000 | Shut down | Shut down |
| Empire Refineries, Inc., Gainesville | 6,000 | 3,750 | 3,500 |
| Griswold Oil Co., Electra | 2,500 | 1,750 | 1,700 |
| Gulf Refining Co., Fort Worth | 15,000 | 5,000 | 4,500 |
| Home Refining Co., Swastika | 1,000 | Shut down | Shut down |
| Humble Oil & Refining Co., Burkburnett | 1,500 | 900 | 900 |
| Humble Oil & Refining Co., Powell | 7,500 | 7,000 | 6,500 |
| Interstate Gasoline Products Co. (formerly New Era Refining Co.), Iowa Park | 2,000 | Shut down | Shut down |
| Invincible Oil Corp. (Montrose), Fort Worth | 5,000 | Shut down | Shut down |
| Iowa Park Prod. & Ref. Co., Iowa Park | 1,500 | 900 | 850 |
| Keystone Ranger Refining Co., Wichita Falls | 2,000 | Shut down | Shut down |
| Lone Star Refining Co., Wichita Falls | 4,000 | 1,000 | Shut down |
| Miller Petroleum Co., Wichita Falls | 2,500 | 2,000 | 1,600 |
| Magnolia Petroleum Co., Fort Worth | 12,000 | 5,300 | 5,000 |
| Magnolia Petroleum Co., Corsicana | 3,000 | 2,000 | 2,500 |
| Magnolia Petroleum Co. (Trinity Ref. Co.) | 3,000 | 1,900 | Shut down |
| Mergargel Refining Co., Mergargel | 1,000 | Shut down | 600 |
| Mexia Oil & Ref. Co., Mexia | 600 | 100 | 150 |
| Noble Oil & Gas Co., Burkburnett | 5,000 | 2,750 | 2,300 |
| Oriental Refining Co., Dallas | 6,000 | 400 | 2,000 |
| Orient Petroleum Co., Wichita Falls | 2,000 | 550 | 800 |
| Panhandle Refining Co., Wichita Falls | 4,500 | 2,700 | 3,000 |
| Paris Refining Co., Paris | 500 | 125 | Under const. |
| Prairie Refining Co., Grand Prairie | 500 | 150 | Under const. |
| The Petroleum Corp. (formerly Beaver-Electra Refining Co.), Electra | 2,000 | 1,000 | 850 |
| Primrose Refining Co. (formerly Abner Davis), Wichita Falls | 1,500 | 1,000 | 800 |
| Ranger Pipe Line & Refining Co. (operated by Hagaman Refining Co.), Tiffin | 2,000 | Shut down | 400 |
| Shelby Oil Co. (formerly Nortex Ref.), Burkburnett | 2,000 | Shut down | Shut down |
| Star Refining Co., Fort Worth | 1,500 | 400 | 450 |
| State Refining Co., Dallas | 1,000 | Shut down | Shut down |
| Sunshine State Oil & Refining Co., Wichita Falls | 2,500 | 2,000 | 2,000 |
| Tidal Western Refining Co., Burkburnett | 3,000 | 1,500 | 1,000 |
| The Texas Co., Dallas | 15,000 | 8,000 | 7,500 |
| Texhoma Oil & Refining Co., Wichita Falls | 4,500 | 3,800 | 2,800 |
| Tiger Refining Co., Breckenridge | 1,500 | Shut down | Shut down |
| Transcontinental Oil Co., Fort Worth | 5,000 | 900 | 1,200 |
| Travis Refining Co., Burkburnett | 1,000 | 350 | 450 |
| Great Texas Refining Co., De Leon | 700 | Shut down | Shut down |
| Waggoner Refining Co., Electra | 3,400 | 2,600 | 1,800 |
| White Eagle Oil & Refining Co., Fort Worth | 5,000 | 3,200 | 3,100 |
| *Total | 223,850 | 72,725 | 64,250 |

*Includes all plants.

### REFINING OPERATIONS IN KANSAS

(Plants which have been in operation during the past year.)

| Name and location— | Daily Capacity | Crude Runs February 1 | Crude Runs January 1 |
|---|---|---|---|
| Commonwealth Oil & Refining Co., Moran | 1,000 | 150 | 150 |
| Derby Oil & Ref. Co., Wichita | 4,500 | 3,250 | 1,500 |
| El Dorado Refining Co., El Dorado | 3,500 | 1,750 | 1,400 |
| Frontier Refining Co., Hutchinson | 2,200 | Shut down | Shut down |
| Grant Oil Co., Augusta | 1,000 | 500 | 650 |
| Golden Rule Refining Co., Wichita | 1,000 | 750 | 750 |
| Gordon Ref. Co. (formerly Great Western Oil Co.), Florence | 1,000 | Shut down | Shut down |
| Industrial Ref. Co. (formerly St. Louis Oil & Ref. Co.), El Dorado | 1,400 | 400 | 750 |
| Interstate Refineries, Inc., Centropolis | 1,000 | Rerun | Rerun |
| Kansas-Texas Oil & Ref. Co., Wichita | 1,500 | Shut down | Shut down |
| Kanotex Ref. Co., Arkansas City | 4,500 | 3,750 | 3,400 |
| Kansas Oil Refining Co., Coffeyville | 1,500 | Shut down | Shut down |
| Kansas City Ref. Co., Kansas City | 5,000 | 4,000 | 3,750 |
| Lesh Refining Co., Arkansas City | 2,000 | Shut down | Shut down |
| Marshall & Co., Sheffield, Mo. | 2,500 | 350 | Shut down |
| Mutual Refining Co., Chanute | 1,000 | Shut down | Shut down |
| Moore Refining Co., Arkansas City | 6,000 | 2,000 | 2,100 |
| Miller Petroleum Co., Humboldt | 2,500 | 1,400 | 1,400 |
| Mo-Kan Refining Co., Kansas City | 1,200 | Shut down | Shut down |
| National Refining Co., Coffeyville | 6,000 | 5,100 | 4,750 |
| Peerless Oil Refining Co., Chanute | 3,500 | 2,100 | 2,100 |
| Red Bird Refining Co., Fredonia | 800 | 150 | 250 |
| Richardson Ref. Co. (Fidelity), El Dorado | 2,500 | 450 | 350 |
| Roxana Pet. Corp., Arkansas City | 10,000 | 6,250 | 5,000 |
| Sinclair Refining Co., Coffeyville | 6,000 | 6,000 | 5,250 |
| Sinclair Refining Co., Argentine | 7,000 | 6,100 | 7,100 |
| Skelly Oil Co. (Midland Ref.), El Dorado | 18,000 | 7,250 | 7,000 |
| Sterling Oil & Refining Co., Wichita | 5,000 | 1,850 | Rerun |
| Standard Oil Co. of Kansas, Neodesha | 12,000 | 10,000 | 10,000 |
| Tiebens Petroleum Co., Potwin | 1,800 | 1,100 | 1,500 |
| White Eagle Oil & Ref. Co., Augusta | 7,500 | 5,900 | 6,250 |
| Wilhoit Refining Co., Joplin, Mo. | 1,500 | 1,250 | 1,400 |
| *Total | 136,100 | 71,800 | 66,800 |

*Includes all plants.

### REFINING OPERATIONS IN ARKANSAS

(Plants which have been in operation during the past year.)

| Name and location— | Daily Capacity | Crude Runs February 1 | Crude Runs January 1 |
|---|---|---|---|
| Arkansas Oil & Ref. Co., Fort Smith | 1,000 | Shut down | Shut down |
| Arkansas Refining Co., Picron | 3,000 | Shut down | Shut down |
| Farmers Oil & Ref. Co., Texarkana | 750 | Shut down | Shut down |
| Grison Refining Co., El Dorado | 750 | Shut down | Shut down |
| Home Refining Co., Hot Springs | 500 | 150 | 100 |
| Jones & Co., R. C., El Dorado | 1,000 | Shut down | Shut down |
| Kettle Creek Ref. Co. (formerly Red River Ref. Co.), Pearson | 4,000 | 3,000 | 3,200 |
| Lion Oil & Ref. Co., El Dorado | 12,000 | 5,800 | 7,500 |
| McMillan, Fehlman & Oliver, operating New Ark Refining Co., El Dorado | 1,500 | Shut down | Shut down |
| Pine Bluff Refining Co., Pine Bluff | 1,000 | 350 | 500 |
| Root Refineries, El Dorado | 3,000 | 800 | 2,000 |
| Shippers Pet. Co., El Dorado | 700 | Shut down | Shut down |
| Union Pipe Line & Ref. Co., El Dorado | 4,000 | Rerun | Shut down |
| Ouachita Valley Ref. Co., El Dorado | 1,500 | 900 | 800 |
| *Total | 37,950 | 11,000 | 13,250 |

*Includes all plants.

### REFINING OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year.)

| Name and location— | Daily Capacity | Crude Runs February 1 | Crude Runs January 1 |
|---|---|---|---|
| Caddo Central Oil & Ref. Co., Shreveport | 3,500 | 3,500 | 3,500 |
| Caddo Central Oil & Ref. Co., Shreveport | 7,000 | 4,500 | 3,500 |
| Louisiana Oil Ref. Corp., Shreveport | 9,000 | 6,000 | 6,000 |
| Louisiana Oil Ref. Corp., Shreveport | 3,000 | 800 | Shut down |
| Red River Refining Co., Crichton | 1,800 | Shut down | Shut down |
| Shreveport Prod. & Ref. Co., Shreveport | 4,500 | 3,750 | 4,000 |
| The Texas Co., Ardis | 6,000 | 5,000 | 4,250 |
| *Total | 51,950 | 23,550 | 21,250 |

*Includes all plants.

# Wyoming Field Operations

By F. B. Taylor

CASPER, Wyo., Feb. 2.—The North Casper Creek Dome has become active in lands and several deals have been completed. This structure lies northwest of Casper about 25 miles, in Townships 36 and 37, and Ranges 81 and 82.

The stagnation of the Sunburst Field, resulting from the overproduction of oil there, has stimulated refinery building on the Canadian side. One refinery is nearing completion at Lethbridge, another is being built at Coutts and a third is planned for Edmonton, all expecting to take their crude from the Sunburst Field.

The Sheldon Dome well, Marine Oil Co., located in Section 8-5-2, Fremont County, about 50 miles north of Riverton, is active again after a shutdown due to frozen water lines. The hole is now at 3,200 feet and in shale and the next Wall Creek sand is expected about 3,350.

The White Eagle refinery east of Casper fired a battery of stills for the first run on January 29. The capacity of the plant is now about 2,500 bbls., but will be enlarged to around 5,000 bbls.

### On Billy Creek Dome

On the Billy Creek Dome in Johnson County, the Consolidated Royalty Co. and Western Exploration Co. well has reached a depth of 4,000 feet and the rotary is now coring samples of the formation. This well is being drilled on a contract with the Carter Oil Co.

The well of the Bradford Oil Co. on the Emigrant Gap Dome, west of Casper about 20 miles, is drilling in shale at 3,700 feet and expecting the Tensleep sand shortly.

The Midwest well on the Golden Eagle Dome in the Big Horn Basin drilling with a rotary is shut down on account of freezing weather. The well is on Section 12-45-97 and is at 2,380 feet.

Northeast of Loveland, Colo., near Boyd's lake, Denver people are starting a wildcat on the Gooch ranch and the rig is now being built. The Midwest is drilling several shallow wells to get a line on the geology about Loveland.

### Salt Creek Operations

The Midwest Refining Co. drilled in a producer that started off at 350 bbls. on Section 30-40-78 in the Salt Creek Field on a tract of the Wyoming Associated Oil Co. on the east of the field.

The Marine Oil Co. shot its well on Section 8-39-78 in the Salt Creek Field with 40 quarts and is cleaning out. This is the Wolverine Oil Co.'s well taken over by the Marine when it merged with the Wolverine. The Marine is also starting a new hole on Section 9-39-78 and on Section 16-39-78 the test drilling there set the 5⅛ casing at 2,724 feet and is about 2,800 feet and expecting the second Wall Creek sand. On Section 17-39-78, the firm set the 8¼ pipe at 2,403 feet and the tools have just cleared the bottom of the casing. After the crew set the 8¼, they pulled the 10-inch casing.

The Union Oil Co. has its well on the Wellington Dome in the Fort Collins district down to 400 feet and has hitched on the beam. This is the second test on the structure, the first test developing the big gas well.

### Two Fort Collins Rigs

In the Fort Collins district, the Union Oil Co. has two rigs under construction. Gas is piped from the big gasser though the traps installed to take care of the flow were found inadequate and will be replaced. The two new wells are located on the Fort Collins Dome and on lands of the Fort Collins Royalty Corp. The Union has placed a battery of tanks at the gasser to take care of the oil that comes with the gas and the well drilling about 2 miles from the gasser is using gas from the first well for fuel.

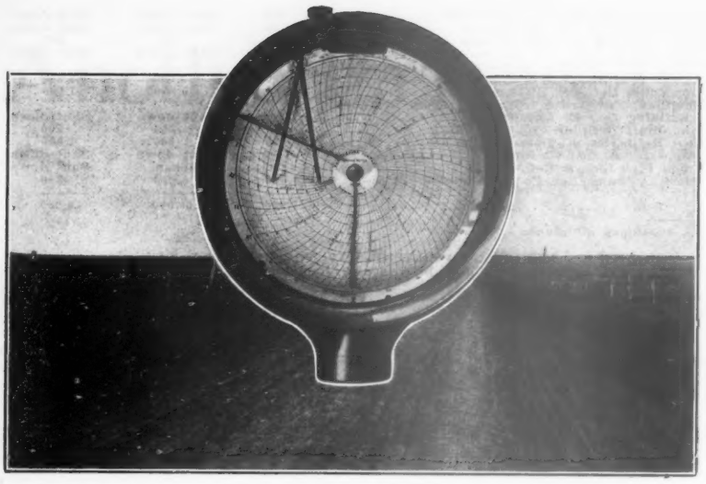
The Texas Co.'s wildcat in the Dutton Basin, south of Moneta, in Fremont County, Wyoming, has shut down for the remainder of the winter. This well is east of the Puddle Springs Dome, about 5 miles, and it was on the Puddle Springs Dome that the Midwest and Ohio drilled three wells about two years ago that created some excitement for a time. However, the Ohio and Midwest wells turned out to be dusters. The Texas location is considered a black oil wildcat as the hole is below the light oil formations of this region. The Tensleep sand is the objective.

The deep test of the Mutual Oil Co. drilling in the Big Muddy Field east of Casper, is still having trouble with a parted string of casing. This hole was drilled to about 3,600 feet with a rotary and then cable tools were placed to complete the hole to the Dakota sand, but the broken casing has held up the job. This is the second well to be drilled to the Dakota sand in the Big Muddy Field. The Fargo pipe line from the Poison Spider Field to Casper is having trouble with the cold weather in making shipments of crude from the field.

### Pipe Line Runs

Pipe line runs from the Rocky Mountain fields increased about 4,000 bbls. the past week. Production from the fields was as follows:

| | |
|---|---|
| Salt Creek | 118,850 |
| Teapot | 4,510 |
| Big Muddy | 3,500 |
| Grass Creek | 3,175 |
| Elk Basin | 1,320 |
| Greybull | 135 |
| Rock River | 3,550 |
| Lance Creek | 1,545 |
| Poison Spider | 200 |
| Osage | 675 |
| Hamilton Dome | 530 |
| Lander | 415 |
| Pilot Butte | 80 |
| Lost Soldier | 6,000 |
| Ferris | 175 |
| Cat Creek | 4,685 |
| Sunburst | 400 |
| Miscellaneous | 725 |
| Total | 150,470 |



# Look For Simplicity In a Field Meter

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## KANSAS FIELDS

(Continued from Page 50)

ing 4,000,000 feet of gas. The same interests abandoned their No. 1 Barnes, CEL W half W half NE, Section 6-29-19, as dry at 1,770 feet. Denton and others completed their No. 1 Denton, C SW SW, Section 34-29-9, as a gas well, with capacity of 3,500,000 feet in sand at 1,460-82 feet.

In Harvey County, a duster was abandoned by the S. S. Oil Co. in its No. 1 Kiehbeil, SW cor. NW, Section 2-23-2e, which was carrying a hole full of water at 2,505 feet.

In Sumner County, a small show of oil was found by the S. H. E. Oil Co. in its No. 1 Stout, SE cor. NE, Section 13-31-2, in sand at 2,835-40 feet, but the well was abandoned as dry at 3,120 feet. Brady Brothers also abandoned their No. 1 Turbin, SW cor. Section 13-32-2, as dry at 3,646 feet, after getting a light show of oil in sandy lime at 3,277-83 feet.

### Cowley County

In Cowley County, the Alcorn Oil & Gas Co. had a rig on the ground for its No. 1 Loptein, NE cor. SE NW, Section 13-31-3e. The White Eagle Oil & Refining Co. and others were spudding their No. 4 Newton, NW cor. SE NE, Section 15-30-4, and had a rig in place for their No. 5 Newton, CWL SW NE NE, same section. Sackrider and associates shut down their No. 2 Fox, NE cor. SW SW, Section 26-32-4, at 1,450 feet, and the Twin State Oil Co. was drilling at 2,700 feet in its No. 1 Hilbert, SE cor. NW, Section 6-32-5.

In the Eastman district, the Empire Gas & Fuel Co. was spudding No. 1 Eastman, SE cor. Section 6-31-6. A rig was in place for a test by Shawver & Sutter in their No. 1 Eastman, NW cor. SW, Section 8-31-6, and the Phillips Petroleum Co. was drilling at 300 feet in its No. 1 Stout, NW cor. same section. Garden & Smith were drilling in their No. 1 Stout, CNL NE SW NW, same section, at 250 feet.

The Waite Phillips Co. made location for No. 1 Carson, SW cor. Section 8-32-3e, and J. D. Hill & Waite Phillips Co. had a rig in place for their No. 1 Wertman, SW cor. NE, Section 20-33-3. Location was also staked for the White Eagle Oil & Refining Co.'s No. 5 Newton, Section 15-30-4, and for Murphy & Morehead's No. 1 Elkins, SW cor. Section 33-30-6.

A 30-quart shot made a 50-bbl. producer out of the Gypsy Oil Co.'s No. 2 Jyson, CSL SW SW, Section 11-30-4, in sand at 2,761-73 feet. The S. S. Oil Co. treated its No. 1 Newton, NE cor. SW NE, Section 15-30-4, to a 20-quart shot in sand at 2,770-87 feet and it made 80 bbls. after the shot. Sutter & Stearns abandoned their No. 1 Maganunson, NW cor. NE SE, Section 15-30-4, as dry at 3,305 feet. Another duster was Torrence & Torrence's No. 3 Seamon, SE cor. SW NW, Section 25-32-4, which was abandoned at 1,500 feet.

### Greenwood County

In Greenwood County, a test had 1,800 feet of oil in the hole after a 110-quart shot in sand at 2,277-2,320 feet, but the casing collapsed. It was Polhamus and others' No. 1 Marshall, SE cor. SW, Section 27-24-9. Hover and others were rigging up No. 1 Hover, NW cor. SE, Section 9-24-9, and a rig was in place for Polhamus and others' No. 1, Halverson, NE cor. Section 27-24-9.

A well estimated at 250 bbls. was brought in after a 150-quart shot in sand at 2,106-66 feet in McGinnis and others' No. 2 Agard, NE cor. SE NW, Section 14-24-9. It was being cleaned out. The same interests' No. 3 Agard, CSL SE NW, same section, was drilling at 1,200 feet, and their No. 3 Brotton, SE cor. NE NW, same section, swabbed 285 bbls. in 12 hours following a 160-quart shot in sand at 2,105-70 feet. Rogers and others' No. 1-A Agard, NW cor. SW NE, same section, was cleaning out and estimated to be making 75 to 100 bbls. after a shot of 180 quarts in sand at 2,095-2,180 feet. The Mid-Kansas Oil & Gas Co. was drilling at 1,300 feet in its No. 1 Anderson, SE cor. SW, Section 11-24-9, and the Phillips Petroleum Co. and others were rigging up their No. 1 Braggs, C NW NW NW, Section 30-24-10. Glayman and others abandoned as dry at 2,172 feet their No. 2 Moore, CSL SE SW SE, Section 24-24-9.

A pay sand topped at 2,081 feet and shot with 120 quarts at 2,091-2,118 feet, was estimated good for 40 bbls. production in the Phillips Petroleum Co.'s No. 5 Edwards, C NW NW SE, Section 13-23-10. The same company was drilling its No. 6 Edwards, one location to the east, at 200 feet. The White Eagle Oil & Refining Co. was drilling its No. 2 Edwards, C NW SW NE, same section, at 950 feet, and its No. 3 Edwards, CSL SE SW NE, same section, at 300 feet. The Empire Oil & Refining Co.'s No. 7 Piatt, C NE NE SW, same section, was drilling at 250 feet. The Mission Oil Co.'s No. 18 Thrall, CEL NE SE, Section 29-23-10, was below 1,100 feet and drilling ahead. The same company's No. 27 Thrall, CSL SW SE, same section, was drilling at 1,000 feet. Rogers and others were spudding their No. 3 Lesly, CNL NW NE, Section 31-22-10. The Syndicate Oil Co. abandoned its No. 1 Clopton, SE cor. Section 23-22-10, as a duster at 2,270 feet.

The Transcontinental Oil Co. had a rig in place for its No. 3 Anderson, SW cor. SE SW SE, Section 11-24-9. Haver and others had timbers on the ground for their No. 1 Haver, NW cor. SW SE, Section 19-24-9. The Braden Brothers had a rig completed for their No. 3 Morris, NW cor. SE SE, Section 27-22-13, and the Tidal-Osage Oil Co. also had a rig built for its No. 7 Olinger, NE cor. SE NE SE, Section 15-23-13.

The Amerada Petroleum Corp. had a rig on the ground for its No. 1 Smith, NW cor. SE SW, Section 18-24-10.

In Woodson County, Curtis & Curtis abandoned their No. 1 Mosher, SW cor. NW, Section 33-25-14, as dry at 2,406 feet. A showing of oil was encountered in this well at 1,938 feet and lime was topped at 1,638 feet, but the hole was full of water when abandoned.

In Russell County, Sutter, Stearns and others had timbers on the ground for their No. 1 Milk, SW cor. SE SW, Section 20-12-15w.

## PRODUCTION RECORD OF BURBANK FIELD

(Continued from Page 86)

put. Burbank will be given full play this year and the properties to be sold at the March auction sale of leases in Pawhuska will all be developed rapidly and by the end of the year will have added greatly to the total of Burbank production, while the Kay County side of the field will be developed as rapidly as wells can be drilled.

It may be that Burbank will never again reach its record production of more than 120,000 bbls. a day, but the work now under way and to be done later this year will maintain production at a high figure for a long time. Every close-in lease to be sold at the March sale should be productive in its entirety and the undeveloped properties in Kay County will include some large producers, in the opinion of operators most familiar with the field.

Burbank wells occupy 10-acre locations and on this basis the 1,136 wells included in this report have yielded up to January 16 an average of 5,526 bbls. per acre. Some of the old wells have done very much more than this and the Gypsy Oil Co.'s northwest quarter of Section 24-27-5 has 14 wells on it which have averaged 15,164 bbls. per acre and the lease had no production on it previous to last March. There are other leases in the field notable for their large yield per acre.

## MOVES TULSA OFICES

The Tulsa offices of the Superior Tube Co. have been moved from Room 313, First National Bank Building, to Room 805-7, in the same building.

## EUROPEAN NATIONS REALIZE NEED OF OIL

(Continued from Page 28)

keep increasing in very large proportion; as can be seen by the following consumption figures:

| | 1921 Tons | 1922 Tons | 11 Mos. 1923 Tons |
|---|---|---|---|
| Crude oil | 371 | 1,510 | 1,083 |
| Gasoline | 409,915 | 551,888 | 675,380 |
| Kerosene | 196,844 | 310,954 | 260,209 |
| Lubricants | 117,749 | 187,175 | 188,289 |
| Fuel and gas oils | 47,863 | 77,068 | 100,327 |
| Total | 772,742 | 1,128,595 | 1,225,288 |

Such consumption figures compared to the national oil production explain to some extent how and why the French Government was made to realize that it could only safeguard its needs and interests by following a more active oil policy.

The first result of its increasing activities were shown by the growing production of the Pechelbronn district. But during the year 1923 new efforts were realized in the oil prospective work through France and the colonies. With the financial help of the French Government a mission composed of oil geologists and experts was sent to the Island of Madagascar.

Other parties were also sent to various parts of France in order to do some oil exploration work. The results of said investigations have not yet been published. But, outside of the official inquiries, other private oil companies went to work and seem to have been rather successful in their efforts. Just recently news was published that near the Vaux gas gusher another boring had struck the same gas strata. This well is known as No. 4 and as there is already production of gas from No. 2 which is far in excess of the present requirements, it is proposed to drill No. 4 farther down until it taps the oil sands which are believed to exist. It will be remembered that the gas emission at Vaux was met in August, 1921, at a depth of about 700 feet and that the daily gas production was estimated at 100,000 meters per 24 hours.

The gas produced by the Vaux wells is being used to supply the adjoining villages and the city of Lyons. It is also going to be used by a company whose business is the manufacture of special glass; the glass furnaces will be heated with the natural gas.

Other information has also been received as to discoveries of oil sands in other parts of France. According to latest news oil indications and seepages are said to have been found near Chartres, in the department of Eure et Loire, and near Figeac, in the lot department.

Outside of its efforts to develop a national oil supply, the French Government is also endeavoring to secure a share of the developed or prospective oil fields of the world. To that effect it sanctioned, on November 7, the creation of a "Syndicate of Oil Studies," based on the two Parisian Banks which are known to be especially interested in oil matters—the Banque de Paris et des Pays Bas and the Banque de l'Union Parisienne. This organization now has the character of a syndicate that studies, with a capital of 1,000,000 francs, but it is assumed that very shortly the syndicate will be transformed into a national oil union, with a capital of 500,000,000 francs. In the future grouping will naturally figure all the foreign oil companies established in France.

### England

England does not seem to have met with any more success during 1923 than during previous years, in her efforts to develop a metropolitan oil supply. In fact, as early as 1921, the English Government had decided to stop drilling wells, and plug the existing ones, with the exception of the D'Arcy and Harstoft wells, leaving to private concerns the mission of proceeding with further oil researches in Great Britain. Up to date no interesting results seem to have been obtained.

Great Britain's metropolitan oil resources seem therefore to be limited to the shale mines of Scotland, but the heavy fall which has taken place in the prices of petroleum products has seriously affected the position of the shale industry which at the present time is being conducted at a heavy loss.

If the production end of England's metropolitan oil industry has not been successful, such does not seem to be the case for her refining industry which, according to latest reports, and in spite of a material decline in prices, had a rather successful year.

The Anglo-Persian Oil Co.'s refinery, located at Llandarcy, near Swansea, continues to give satisfactory results and its throughput shows a steady increase. A new plant has recently been added to the refinery for the purpose of manufacturing not only gasoline, kerosene and fuel oil, but also lubricating oils, wax and other by products. It is now claimed that the Llandarcy refinery is able to supply about 50 per cent of Great Britain's needs in various petroleum products. One will readily realize what this means when considering the amount of oil products imported in Great Britain.

### British Imports

Great Britain's 10 months' imports for 1922 and 1923 were as follows:

| | —Imperial Gallons— 1922 | 1923 |
|---|---|---|
| Crude | 177,734,256 | 278,785,116 |
| Lamp oil | 125,644,133 | 112,924,023 |
| Motor spirit | 266,928,211 | 276,853,364 |
| Spirit other than motor spirit | 2,200 | 2,605,255 |
| Lubricating oil | 58,547,584 | 72,899,322 |
| Gas oil | 57,288,014 | 62,958,080 |
| Fuel oil | 335,084,484 | 308,324,445 |
| Other sorts | 27,329 | 50,269 |
| Total | 1,021,255,211 | 1,115,399,874 |

It is evident that the crude oil, imported in increasing quantities as shown by the above figures, is refined in England's local refineries. Most of this crude is produced by the oil fields of Persia, controlled by the Anglo-Persian Oil Co. and exported to England. Considering the extreme importance to England of this very rich source of supply it may be of interest to mention here the production statistics of Persia, which were recently given out by Dr. A. E. Dunstan, of the London Institution of Petroleum Technologists, said figures indicating the rate of progress during the past 12 years.

| Year ended March— | Tons |
|---|---|
| 1912 (seven months) | 43,084 |
| 1913 | 90,800 |
| 1914 | 273,635 |
| 1915 | 375,977 |
| 1916 | 449,394 |
| 1917 | 644,074 |
| 1918 | 897,402 |
| 1919 | 1,081,919 |
| 1920 | 1,354,631 |
| 1921 | 1,767,070 |
| 1922 | 2,310,098 |
| 1923 | 2,913,808 |

### Germany

The petroleum production of Germany was formerly coming mainly from Alsace, and since that territory has reverted to France it has been insignificant.

Considering, however, that Germany's importations of petroleum and petroleum products are extremely low, one cannot help but conclude that Germany possesses a domestic source of supply which permits her to dispense with imported oil to a very large extent. Information on this point is not freely published in Germany, possibly because the industry is controlled by a few magnates who have no particular desire to advertise their activities.

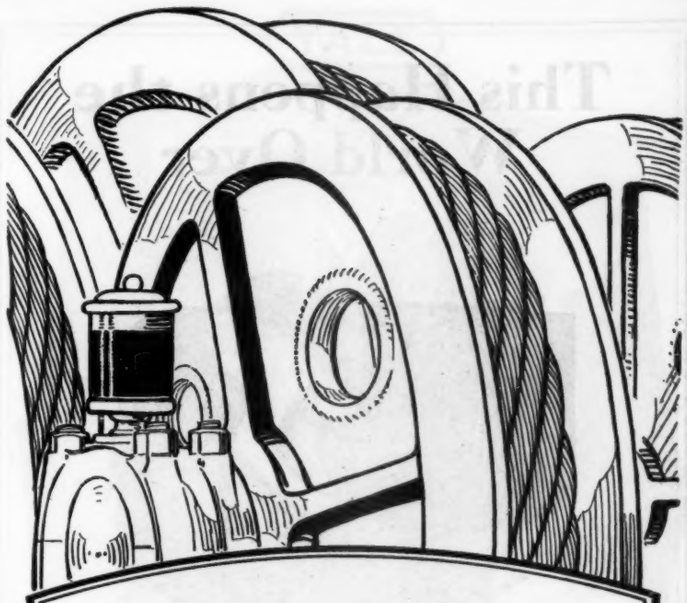
It would seem, however, that Germany's oil requirements are met by the distillation of lignite or brown coal. Numerous reports have been published about Germany's discoveries concerning the carbonization of coal at low temperatures and the hydrogenation of coal. Plants seem to have been installed according to Doctor Bergin's plans and to have given very interesting results.

Germany's brown coal or lignite deposits are of a very extensive character; they are found in numerous districts scattered all over the country.

### Italy

During 1923 Italy's efforts to develop a national oil supply have been quite remarkable. Like the other powers of the world, Italy has not failed to realize the extremely important part played by petroleum and its by products in the industrial and economical life of a nation.

In 1922 the search for petroleum was authorized in Italy. The country was divided into zones, the study of which was assigned to a geologist of recognized

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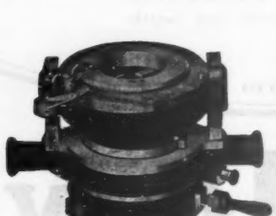

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standing. The results of these studies have been encouraging and in Emilia, Abruzzi, Avelline, Basilicata and Sicily important indications of the existence of hydrocarbons which would make drilling advisable, are said to have been found.

Drilling has already been begun in the districts on which the geologists reported favorably, but no important new results seem to have yet been obtained.

During the year 1922, Italy's crude oil production amounted to about 6,000 tons, 5,000 tons of which were produced by Emilia.

### Spain

In Spain, during 1923, quite a number of concessions were granted by the Spanish Government to various oil companies. Very good prospects are said to have been found in various parts of Spain mainly in the provinces of Andalusia, Austria, Aragon and Gerone. But up to date no paying oil sands have yet been located.

### Balkan States

The same story can be said of the Balkan States, where the existence of good oil indications and seepages have been known for a long time. In spite of the great activity shown by the various governments of these States, and the favorable terms which they granted to the prospecting companies, no oil field of any importance has yet been located. One must, however, mention Czecho-Slovakia's efforts to increase her crude oil production. In 1922 the Egbell wells produced about 1,200 tons per month, that is about one-tenth of the country's consumption.

### Conclusions

From the above remarks it may be seen that during 1923 the European situation, as far as the petroleum industry is concerned, did not show much of an improvement. Rumania and Poland increased, only very slightly, their crude oil production, but, considering the requirements of the other European countries, the quantities of petroleum products which they were able to export did not amount to much more than a drop of water in a bucket. With the beginning of 1924 one may express the hope that the utmost efforts made by the various countries of Europe to develop an oil supply of their own will ultimately be successful. In the presence of such a situation as now exists in Europe one cannot help thinking of what might happen, should the prolific oil fields of the United States begin to show signs of exhaustion, thereby obliging the petroleum industry of America to stop or reduce its oil shipments to Europe.

Everybody in Europe is awake to such a danger. May the year 1924 bring the means of avoiding it.

## CALIFORNIA FIELDS

(Continued from Page 107)

it, too, will be carried to the deep sand. The Golden Eagle Oil Co. finished its No. 1 at 5,005 feet and, although the well has been bailed for several days, nothing but mud and water has been taken out of the hole. Havenstrike & Baker are also bailing a deep well for production, operations having just been started on its No. 2, drilled to 5,050 feet. The latter well looked a little better than the Golden Eagle's No. 1 and, judging by appearances, will register a better production. The General Petroleum Co. finished the best deep well of the week when it put No. 2 K. & H. on production after drilling it to 5,500 feet. The output during the first 24 hours was 2,580 bbls. and, instead of decreasing toward the end of the test, the well seemed to be flowing better. The oil, testing 25.8 degrees and showing a cut of 1 per cent, is flowing through a 1-inch bean under a pressure of 600 pounds. The Atlantic Petroleum Co. was not quite as successful as the General Petroleum and had to content itself with a 700-bbl. producer in No. 2 Maltby. This new well was drilled to 4,738 feet and is flowing clean 24.8 gravity oil.

### Santa Fe Springs

Development work at Santa Fe Springs was productive of only a few new wells during the week, none unusually large. The Associated Oil Co. completed a small well on its Clark lease, No. 9, drilled to 4,661 feet, and as a result, increased its field production 425 bbls. The output from this new producer tests 34.2 degrees and shows a cut of 3 per cent. George F. Getty finished his No. 15 at 4,613 feet, while the Standard completed No. 5 Koontz at 4,624 feet. Neither was actually put on production, Getty running a 4½-inch oil string, while the Standard is making preparations to put No. 3 Koontz on the pump. In addition to completing No. 15, Getty finished rebuilding the rig for No. 16, recently destroyed by fire, recovered some lost drill pipe and is again drilling ahead. The Southern California Oil Co., after three weeks of continuous bailing, brought in its No. 2, although the initial output of 165 bbls. was not commensurate with the amount of work done. There was an unusual amount of heavy mud in the hole and the well is undoubtedly flowing under a big handicap. The oil, which tests 34.7 degrees, shows a cut of 6 per cent, probably drilling mud, which will be eliminated to a large extent after the well has been on production for a week or two. The Petroleum Midway Co. (California Petroleum) finished drilling three wells but was only successful in placing one on production. The company's new producer, No. 2 Steinly, was only a mediocre well, its maximum output being 94 bbls. from 4,675 feet. The company's two completions which were not put on production were No. 2 Weaver, drilled to 4,617 feet, and well No. 7 on Mattern lease No. 3. The two latter are being bailed and will probably appear on next week's completion list. Reid & Berlinger are also preparing a well for production. No. 1 Reiber, finished at 4,620 feet, and will probably secure their first and only success in this field. The Union Oil Co. finished cleaning out its No. 10 Bell and brought back early in the week flowing 375 bbls. a day under a pressure of 500 pounds. This well has been plugged back from the Meyer to the Foix zone and is producing from 3,570 feet. The company was not successful in forcing No. 10 Bell to pump from the deep Meyer zone and will probably be in a better position to pump from this new depth in the future after the well has ceased to flow. The White Star Oil Co. spent several months trying to put its No. 1 on the beam, but finally gave up the attempt to pump from the Meyer zone and decided to plug back to the Bell zone. The bottom of the hole is 4,731 feet but a plug has been set at 4,040 feet. The casing was perforated from 3,750 feet to 3,880 feet and the well put on the beam. The entire operation has proven a success for the initial output upon completion of 450 bbls. tests 29.1 degrees and shows a cut of only 2 per cent.

### Huntington Beach

There is only a limited amount of development work being done at Huntington Beach and as a result the number of weekly completions is necessarily small. The current week proved no exception, only four wells being completed. The Shell has finally succeeded in putting No. 6 Ashton on production after plugging it back from 5,211 feet to 4,975 feet. The total production during the first day, however, was only 16 bbls. of 24.3 gravity oil, which showed a cut of 3 per cent. The Petroleum Midway Co. finished No. 5 Towers a week ago, but because of the large amount of water present at that time it was not recorded as a finished well until the early part of the current week. It was drilled to 4,800 feet and is finally listed as a 110-bbl. well producing 25.1 gravity oil with a cut of 6 per cent. The Republic Producers and the Petroleum Co. both completed small wells, the former's No. 7, drilled to 4,556 feet, registering an initial output of 105 bbls., while No. 3 Porter of the Petroleum Co. made 103 bbls. from 3,973 feet. The oil from the Republic's Producers No. 7 tested 23.1 degrees and showed a cut of 3 per cent, while the output from No. 3 Porter tested 22.5 degrees and showed a cut of 20 per cent. The Standard Oil Co. spudded the only new well started during the week. The company finished the rig for No. 4 Thompson several weeks ago but only started making hole a few days ago. The

Associated Oil Co. has opened up all its wells and is still credited with the largest amount of production. The company is running about 15,000 bbls. a day from its various properties.

**Miscellaneous Drilling**

The General Petroleum Co. has not yet succeeded in completing its No. 1 Gardena at Compton but is making good headway with its new 8-inch pipe line being laid from the field to its tank farm. The well seems to be wet and will probably require another cement job before a successful production test can be made. Several laboratory tests have been made of the oil coming from the well and the results have shown several different gravities. Notwithstanding the unsatisfactory results of these tests, the showing of No. 1 Gardena has been so good that the company has high expectations of completing an excellent well. Geologists are still undecided as to whether the sand picked up by the General Petroleum Co. is the same found by the Union Oil Co. in its discovery well, No. 1 Callender. The General Petroleum Co. is making good progress in No. 1 Austin and is drilling ahead at 2,800 feet in a hard sandy formation. The Union Oil Co.'s second well in this field, No. 3 Callender, completed a few weeks ago, sanded up during the week and while being bailed down a little water was encountered. The well started flowing a few weeks ago while a water test was being made and before it had been completed, but since the oil was comparatively clean, it was allowed to continue. It will be remembered that the Union had an unusual amount of water trouble in its No. 1 Callender and it was surprising that No. 3 did not also experience this difficulty. It is believed that the water present in No. 3 Callender is from the same source as that which bothered No. 1 Callender. About the same time that No. 3 Callender went off production the Union picked up the sand in its No. 1 Carson at 3,947 feet and will probably complete it some time within the next few weeks. Number 1 Hellman shows 3,420 feet of hole but a fishing job has developed which is delaying further progress. The company's No. 1 Rosecrans, drilling in the extreme northern part of the district, has passed the 3,900-foot level, but no favorable indications have been found to date. This well is several miles from the discovery well and it would not be surprising if it resulted in a duster. The Chase Oil Co. will probably be in a position to continue drilling its well No. 1, 2 miles west of the discovery well, within the next week or so if the fish, which has temporarily held up drilling, has been fully recovered.

The only new development work undertaken in the Rideout Heights section of the old Whittier Field is a grade being made for well No. 9 by the O'Donnell Refining Co., and the preparations being made by the Southern California Oil Co. to deepen its well No. 1, standing suspended at 3,833 feet.

Recent rumors regarding the finding of oil by the Standard Oil Co. in its Anaheim wildcat, No. 1 Wagner, appear to be without foundation. The Standard's tool is drilling ahead in a very hard formation at 3,162 feet, which permits only a small amount of hole to be made daily. The Marland Oil Co., operating in California as the Coast Land Oil Co., has let a contract to E. J. Miley to drill its first well near Anaheim and active development work will be under way shortly. The Marland has several hundred acres under lease near Anaheim and a little acreage near Compton. Its acreage at Compton is much more favorably located but possibly lease requirements call for immediate development at Anaheim.

The Oak Ridge Oil Co. is preparing to recement its Bandini wildcat, No. 1 Rossi, at 4,009 feet in an effort to secure a water shutoff. It is believed the company is considering casing off the water as a last resort if the next job is not successful. The Pan-American has been responsible for an unusual amount of activity around El Segundo as the result of a reported showing in its test, No. 1 Pacific Southwest. The well was drilled to and cemented at 3,670 feet but a water shutoff has not been secured. The company is very reticent about giving out any information about this well but it is reported that a fishing job has also resulted and if this is correct it will be some time before the potentiality of the district is determined. The Standard Oil Co. has not spudded in its nearby well but will probably do so within a short time. The Fortuna Oil Co. has erected a rig to the southeast and is rigging up for immediate work. The Pasadena Puente Oil Co., after one unsuccessful attempt to secure production in the San Jose Hills, has entered the Newport district and is building a rig for its first well. In the San Fernando Valley, the Russell Oil Co. is making preparations to drill a test well near Chatsworth. This section has been condemned by nearly all geologists but at least once every year or two a wildcat is drilled.

**Field Operations**

Oil field operations reported to the State Oil and Gas Supervisor show 29 new wells started, compared with 33 during the previous week, a total for the current year to date of 120, compared with 120 at the same time last year. Of the 29 permits issued, 21 were for new wells at Torrance, 2 at Huntington Beach, 2 at Long Beach, 1 at Compton and 3 in the fields of Kern County. Permits were issued for the following new wells.

**Torrance**

Location, company, well—
23-4-14 Universal Cons. Oil Co. 2.
23-4-14 International Drill. & Eng. Co., 2.
23-4-14 Hackworth & Brunwin—McGovern, 1.
24-4-14 Petroleum Midway Co., Ltd.—Logan, 1.
24-4-14 Shell Co.—March, 1-A.
23-4-14 Kettler, 2.
24-4-14 March, 4.
15-4-14 C. C. M. O. Co.—Torrance, 33.
15-4-14 Torrance, 35.
15-4-14 Torrance, 36.
15-4-14 Torrance, 37.
23-4-14 Kettler, 11.
23-4-14 Kettler, 12.
23-4-14 Kettler, 13.
15-4-14 Petroleum Securities Co., 15.
23-4-14 United States Royalties Co., 21.
23-4-14 United States Royalties Co., 22.
23-4-14 United States Royalties Co., 20.
23-4-14 Armstrong & Guthrie, 1.
15-4-14 Pet. Mid. Co. Ltd. Stock. Comm., 3.

**Huntington Beach**

13-6-11 Globe Petroleum Corp.—Judd, 1.
13-6-11 Standard Oil Co.—Surf, 4.

**Long Beach**

29-4-12 Shell Co.—Alamitos, 14.

**Compton**

11-3-13 Lynwood Cons. Oil Interests, Inc., 1.

**Kern County**

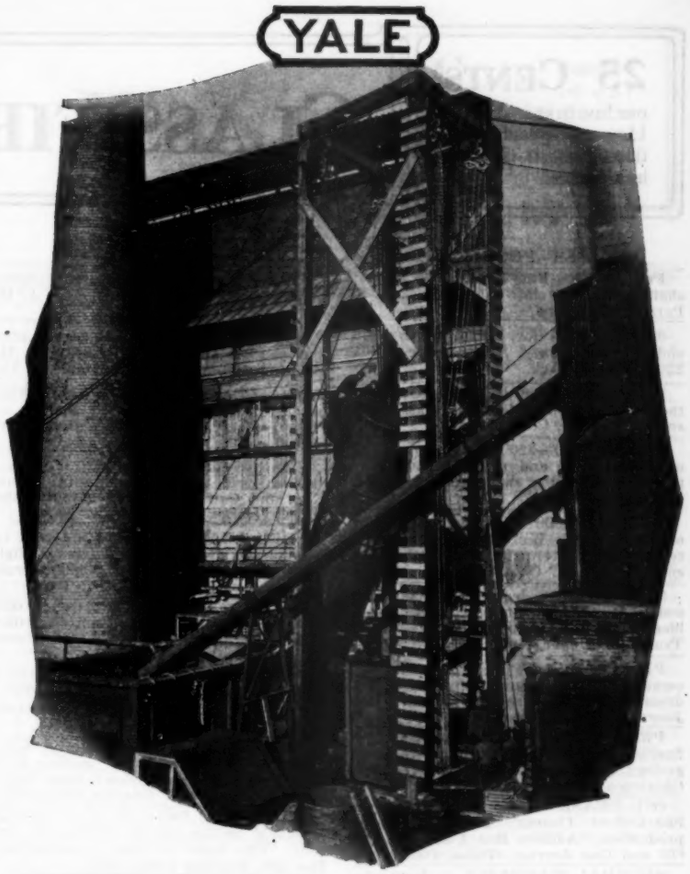
34-31-24 Midland Oilfields Co., 2.
15-27-28 T. A. Piper—Piper, 4.
11-27-28 Piper, 3.

## PRAIRIE ASKS LIFTING OF BAN ON REFINING

TOPEKA, Kans., Feb. 4.—That the Prairie Oil & Gas Co. may be going into the refining business and establish it own system of filling stations was indicated when it filed a motion in the Supreme Court asking that the original order of the court in the anti-trust suit brought against all the Standard Oil companies in Kansas in 1907 be modified so it could go into the refining and distribution of petroleum products if it so desired.

In the ouster suit against the Prairie and the two Standard Oil companies, the Supreme Court in 1911 prohibited the Prairie doing any refining business. It was limited to the producing and transportation part of the oil business. The Standard of Indiana was limited to the distribution of petroleum products and the Standard of Kansas was limited to refining crude oil.

The attorneys for the Prairie set forth in the motion just filed that there was such a demand for petroleum products that all the companies now in the field were unable to supply the demand. The motion did not disclose definitely that the company intended to go into the refining business, but it asked the court to so modify its judgment that the company could do so if the company thought it desirable.

# There can be no failure here

The lives of these workmen and thousands of dollars worth of fabricated steel rest in the absolute security of this hoisting equipment.

Yale Chain Blocks, as illustrated above, were used exclusively on this important job of erecting a heavy sheet-steel stack at an eastern gas plant. The Yale Blocks, in place of the usual tackle, readily facilitated the accurate placing of the sections with perfect safety.

Such construction work means a decidedly uncertain load. Any one of the blocks must be capable, at any moment, of safely taking an emergency strain much greater than the normal load for which it was designed.

Yale Chain Blocks can always be depended upon.

Every vital part of a Yale Spur-Geared Chain Block—hooks, load chain, load sheave, gears, pinion and suspension plates—is made of steel, strong enough to stand several times the rated load. And the Yale load hook, opening gradually, gives ample warning of dangerous overloading. Yale Blocks are individually tested to 50 per cent above rated capacity before shipment.

**YALE MADE IS YALE MARKED**

YALE
Chain Blocks, Electric Hoists } For Lifts
I-Beam Trolleys, Industrial Trucks } For Shifts

**The Yale & Towne Mfg. Co.**

Makers of Yale Products: Locks, Door Closers and Material Handling Equipment
Stamford, Conn., U. S. A.

YALE Hoisting and Conveying Systems

**25 CENTS** per line first insertion; 15c per line each additional insertion. Cash in advance.

# CLASSIFIED WANTS

**COPY** must be in our office Friday prior to date of issue. Average 6 words to the line. Cash in advance

## LEASES—PRODUCTION

FOR SALE—Fine block of oil leases; shallow drilling; close to pipe line. A. S. Potter, Iola, Kans.

6,000 ACRES for a test well, south end Lonoke County, Ark. Address Box 222, England, Ark.

ROLALTIES and drilling contracts in the Northern Colorado Oil Fields. Ahlstrand, Greeley, Colorado.

ACRES, 40—$200 payments, $5 monthly; truck and poultry land; near town; Missouri; a snap. Box 198, Mt. Vernon, Ill.

I HAVE 7,000 ACRES to give for one test well. Will furnish maps and report. Fred Stewart, 1236 South Cheyenne St., Tulsa, Okla.

3,000 ACRES lease for 3,500-foot well; Barton County, Kansas. Two blocks; write for particulars. M. C. Trumbull, Hoisington, Kansas.

PRODUCING oil wells for sale, by owner, Arkansas-Louisiana district. Address Box A-53, care The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION, leases, royalties, refineries and drilling blocks, with good geology. Fairmount Investment Corp., Oklahoma City, Okla.

OIL LEASE—Large tract of land in Shackelford County, Texas, adjoining production. Address Box A-54, care The Oil and Gas Journal, Tulsa, Okla.

SEVERAL BARGAINS in Kentucky production; leases in proven territory; good drilling propositions; royalties; low operating cost. Box 523, Bowling Green, Ky.

OFFER 7,000 ACRES solid block for test well; excellent geology; good title; northern part State of Tamaulipas, Mexico. Great opportunity. P. O. Box 957, Kansas City, Mo.

FOR SALE — Salt Creek leases and production, also producing black oil leases and structures to be tested. R. Kamon, 242 East Second, Casper, Wyo.

WEWOKA—Oklahoma's newest oil field; have high class or cheap leases and royalties for sale, in Seminole, Pottawatomie and Lincoln Counties. W. R. Turner, 2123 Warren Ave., Chicago, Ill.

OIL COMPANY now drilling well in the famous Hirschi district of Wichita County, Texas, offers acreage within a half-mile of well. Cash and quick action required. P. O. Box 957, Kansas City, Mo.

OIL LEASES FOR SALE

3,040 acres, all in solid block, in proven territory, at $25 an acre; 3 to 6 miles southwest of Sterling, Okla.; in range 3n, 9 and 10 west. Call and see George Scheetz, Fletcher, Okla.

LARGE BLOCK of acreage on approved structure in northeastern New Mexico for a test well. If you are in a position to finance the drilling of a well and mean business, write C. E. McGinnis, Roy, New Mexico.

WANTED—100 men with $100 each to join me in drilling test well on my choice 8,000-acre lease on Marathon fold in Texas. Fred J. Quinn, San Angelo, Tex.

PAWNEE COUNTY, Oklahoma, lease for quick sale. The north 80 acres of the southwest quarter, Section 30-20n-6e. Production nearly on all sides; good wells within about 1 mile of lease; will give good deal for quick action. Write owner, Theo. Kurz, Burlington, Alfalfa County, Oklahoma.

PROTECTION ACREAGE—In new Alberta oil field; $2,500,000 corporation drilling adjoining ground; wonderful geology; few sections same structure; obtainable through head geologist; production both sides. Large British capital coming; complete reports; quandrangles, photographs here. Must act promptly. Address Box A-84, care The Oil and Gas Journal, Tulsa, Okla.

## LEASES—PRODUCTION

FOR SALE—40-acre royalty interest in Pine Island Field, Louisiana. J. E. Allen, Mulberry, Ind.

FOR QUICK SALE—180 barrels production; 946 acres proven leases. W. M. Bridgett, 406 Adams Bldg., Danville, Ill.

OIL LEASE—Duncan Field; offset production. Big interest if drilled at once. A. N. Wooldridge, Chickasha, Okla.

LEASES and blocks near locations, drilling wells and production in Grant, Kay, and Cowley Counties enjoying the big play. Box 24, Silverdale, Kans.

FREE LEASES—San Juan Basin, to developers. New Mexico's famous high gravity territory; 160 to 20,000 acres. Edward C. Hall, Sugar Land, Texas.

WILDCATTERS — Five to 10,000 acres in Morehouse gas and oil field; Township 23 north, Range 8 east. Lock Box 4, Jones, La.

FOR SALE—40-barrel net production; 350 acres located in Allen County, Kentucky. Wells over year old. If interested, write Box 365, Bowling Green, Ky.

FOR SALE—Warren County Kentucky, 60 acres, two wells, making four barrels, settled production; lease fully equipped. Box 508, Bowling Green, Ky.

WILL GIVE 100 acres in the famous Rockfield section for the drilling of one well. This lease is close to production. Box 489, Bowling Green, Ky.

FOR SALE—At bargain prices, oil and gas leases, production and royalties in the Kentucky shallow fields. For full particulars and maps, address W. P. Harley, Bowling Green, Ky.

Production
Drilling Blocks
Leases and Royalties
Geological Value Given Preference
J. M. Allen
902 Petroleum Bldg., Tulsa, Okla.

OIL OPERATORS—Montgomery County, Mississippi, world's next big oil field; 3,000 acres leases for well. W. C. Brooks, 282 S. Front St., Memphis, Tenn.

5c AN ACRE CASH—Texas school lands for sale by the State at $2 per acre; 5 cents an acre cash, balance in 40 years, 5 per cent interest. Send 6 cents postage for further information. Investor Publishing Co., Desk 8, San Antonio, Texas.

TEXAS oil leases close to drilling wells in Luling Field, Guadalupe, Bexar, Webb and Medina Counties. Standard Form 88 five year leases. Much development taking place. Write for map and particulars. L. W. Stieren, 815 Alamo National Bank Building, San Antonio, Tex.

OIL LEASES

We have leases 20 to 50 miles from the new Luling Field in Texas from 10c an acre up to $1 an acre in tracts of 10 acres up to 10,000 acres. We have many other leases along Balcones Fault and Sheffield (Marathon Fold) Terrace. Here are a few of our leases:

| | |
|---|---|
| Blanco County | 10c an acre |
| Bandera County | 30c an acre |
| Comal County | 15c an acre |
| Hays County | 20c an acre |
| Guadalupe County | $1 an acre |
| Kerr County | 15c an acre |
| Medina County | 40c an acre |
| Travis County | 25c an acre |
| Zapata County | $1 an acre |

We also have leases less than 1 mile from production at higher prices. All these leases are the standard form 88 5-year leases and all were bought direct by us from the land owner, which accounts for the extremely low prices. We have 30,000 acres on hand to take care of your orders. Don't send any money now; get particulars and maps first. No obligation.

GULF REALTY CO.
1022 Bedell Bldg. San Antonio, Tex.

## LEASES—PRODUCTION

I HAVE 70 acres in Payne County, Oklahoma, for lease. The southeast quarter Section 6, Township 17n, Range 1 east of the Indian Meridian. Address, Annie Richardson, Route No. 1, Box 2, Coyle, Okla.

I HAVE wildcat acreage for sale in vicinity of well located by the same geologist who discovered the Sayre oil field and recommended by him to be as safe an investment as the Sayre Field. I can sell for $2 per acre and up. Dr. W. R. German, Canadian, Tex.

75c PER ACRE for 1,000 or 5,000 acres in the Panhandle of Texas on surveyed structure. Well drilling to prove this territory. No rental due till 1926. A snap for someone. If interested, write and will forward printed geologist's report and map. 300 Alworth Bldg., Duluth, Minn.

OIL LEASE—Well drilling; send for map; full details. Lock Box 448, Sterling, Kans.

6,000 ACRES—Solid block; well drilling now; showing oil; high grade; joins block. F. Purdy, Lock Box 448, Sterling, Kans.

FOR SALE—80 acres; three wells; 5 barrels production; all proven; five wells shallow, offsetting deep well now drilling. Powers, engines, tanks, casing and well equipment. J. S. Danneck, Paola, Kans.

LEASES AND ROYALTIES—Pottawatomie, Lincoln, Seminole, Pontotoc and McClain Counties. Maps of Pottawatomie showing acreage leased. Paper, $3.50; cloth, $5; postpaid. B. H. Rowlett & Co., Tecumseh, Okla.

TEXAS OIL LEASES, 10 cents an acre up to $10 an acre. Will sell tracts of 10 acres or more. Have 30,000 acres to choose from. All new five-year leases. Get full particulars. Gulf Realty Co., 275 Bedell Building, San Antonio, Texas.

METCALF COUNTY OIL LEASES

I own several very desirable leases near production, shallow drilling, 220 to 400 feet; production 5 to 20 barrels daily: 45 to 51 gravity oil, which I offer to the right parties on very easy terms. A. W. Richards, Edmonton, Ky.

PRODUCING LEASE

Woodson County, Kansas; west 120 acres of southwest quarter, 34-23-16; proven field; 3 wells; pump house; full equipment; private sale to highest bidder. Sealed bids opened March 10. Full details; address owner. Box 266, Topeka, Kans.

FOR SALE—Oil and gas leases on 120 acres in 21-10-6, Seminole County, at $4 per acre. Okmulgee Securities Co., Okmulgee, Okla.

PRODUCTION FOR SALE—220 barrels daily; 40 locations available; net earnings 35 per cent; price $200,000. Address, G. Lucas, 617 Edwards Street, Shreveport, La.

KENTUCKY oil and gas leases for sale near production; drilling wells and on good structure. Write me for map and description. F. L. James, Box 194, Edmonton, Ky.

MONTANA—Toole County leases, 140 producing wells in this county. Shallow drilling; 40-acre leases near production, $10 per acre; also proven acreage. A. W. Beeston, Shelby, Mont.

PRODUCTION—Will sell oil and gas production; two oil wells making over 25 bbls. of 49 gravity oil, and gas well making nearly 3,000,000 feet, on lease of over 1,000 acres direct on railroad, in Roane County, West Virginia, with full supply of casing, pipe lines, rigs and engines; property has pipe line connections and offers great possibilities; will sell at bargain price. If interested telegraph me of your arrival for inspection and investigation of this property. C. Lewis Wilson, Oil and Gas Broker, Parkersburg, W. Va.

## LEASES—PRODUCTION

WILL GIVE blocks of acreage for drilling contract in Russell and Adair Counties; Kentucky's next big oil field. Box 288, Bowling Green, Ky.

FOR SALE—Choice one-half royalties close to drilling structure, in Eastern Texas. Every indication for success very favorable. Also have lease and royalties in Panola, Shelby, Rusk and Nacogdoches Counties, Texas. Will furnish large tracts for development. Address, R. L. Day, Timpson, Texas.

WILL SELL lease on my oil lands in Section 4, Township 17, Range 15, in oil section of Arkansas to someone who will drill immediately. One hundred and fifty acres; good wells near; deep sand and highest specific gravity found in the State. Address Mrs. M. J. Tucker, 1101 15th St., N. W., Washington, D. C.

TAKE NOTICE—Oil man or investor. I can furnish a few choice 40-acre leases at $100 each of 20 acres at $60. Located in north central Canada on the same uplift and within 2½ miles from test well. Two wells fully financed and drilling are to be completed this spring; both wells have had excellent showings of oil and gas; analyses show oil to be high gravity. Government title to lease. This is a bonafide opportunity. Cornelius Blegen, Field Scout, Box 1658, Winnipeg, Canada.

## FARM LANDS FOR SALE

ACRE UNITS—Ten pecan and 40 orange trees, $120; $10 monthly; guaranteed care. Ultimate production $1,000 yearly. Suburban Orchards Co., Dept. J, Biloxi, Miss.

FOR SALE—160 acres; 12 miles north Wichita, Kans.; well improved; 2 houses; clear of incumbrance. 2514 Cissna, Kansas City, Kans.

MISSOURI—For Sale. We own several farms, 40 acres up to 320 acres; will sell to actual settlers at low prices and on terms most anyone can handle. Best time to start in farming, while everything is cheap. Lock Box 172, Butler, Mo.

ORCHARD; bearing; 6,500 apples; 500 cherries, 200 pears, 100 peaches; fully equipped; tractor, sprayer, teams, five-room house; 5 miles college town, 100 miles St. Louis; crop this year about 23,000 bushels; terms or some exchange. Buehner, Box 157-A, Neosho, Mo.

FOR SALE—8,000 acres of cut over lands in Cleburne and Van Buren Counties, Arkansas. Much of this property has improvements on it. No oil or mineral lease ever been given. Fine section for truck, vegetables, fruit; good water. In foothills of Ozark Mountains. Price, $3 per acre. Claude Jones, Heber Springs, Ark.

## WANTED—REFINERIES

WANTED—To lease or buy small, well equipped gasoline refinery, in first class condition. Must be well located with good supply of crude available. Address Box A-60, care The Oil and Gas Journal, Tulsa, Okla.

## FOR SALE—REFINERIES

OIL REFINERY for sale. Address, J. I. Jones, Trustee in Bankruptcy, Box 1005, Great Falls, Mont.

FOR SALE—Refinery with 10 acres deeded ground; 18-car capacity loading racks; modern machinery. One-half cash, balance terms to suit purchaser. Full particulars with complete inventory on request. Located, El Dorado, Ark., the source of crude. Address, Box 884, El Dorado, Ark.

## FOR SALE—EQUIPMENT

FOR SALE—Good second hand Star rig; steam; with all necessary tools for 600-foot wells. Address 3550 Brandon Avenue, Chicago, Ill.

**25 CENTS** per line first insertion; 15c per line each additional insertion. Cash in advance.

# CLASSIFIED WANTS

**COPY** must be in our office Friday prior to date of issue. Average 6 words to the line. Cash in advance

### FOR SALE—EQUIPMENT

FOR SALE—One 70-h. p. type four Bessemer oil engine; practically new; run less than 60 days. Reese Construction Co., Hamburg, Iowa.

FOR SALE—110-h. p. twin cylinder Bessemer natural gas engine; 20-h. p. single cylinder; good as new. Barnes Gin Co., Poteau, Okla.

OIL FIELDS—Oil field machine and forge shop. Priced very low; shop complete, $4,000. The U. S. Tool & Supply Co., Steubenville, Ohio.

FOR SALE—12-18 Sheppard lathe; one No. 16 Leidecker; one 24 Star tractor; one 23 Star tractor. J. S. Danneck, Paola, Kans.

FOR SALE—Used casing and line pipe in A-1 condition, all sizes. Write or wire for prices. Cisco Pipe & Supply Co., Cisco, Tex.

BUCKEYE—1½x11½ trench machine 8000; 20-h. p. Avery single-cylinder steam engine, $500. The above machinery must be sold soon. Silas Quick, Piper City, Ill.

FOR SALE—Standard string of tools; bits up to 20-inch; two boilers with fishing tools; located near Choteau, Mont. A bargain for cash. F. M. Gray, Jr. Co., 290 Third St., Milwaukee, Wis.

FOR SALE—A 2-inch double coil for a refinery; 18 feet long, in first class condition; and as good as new. Address Box A-75, care The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—One No. 28 Star; fair condition; and set of tools, with 30-h. p. boiler; 3 miles from K. C. S. Railway, at Potter, Ark. $1,500. L. A. Longino, Magnolia, Ark.

FOR SALE—20, 30, 40, 45, 60, 65, 80, 125-h. p. Bessemer gas engines, 35 and 80-h. p.; Bessemer direct drive compressor; other engines up to 350-h. p. Some with generator. Complete electric plants. R. W. Russell, St. Marys, W. Va.

PIPE BARGAINS

150,000 feet 2½-in. pipe, 8c
50,000 feet 2 -in. pipe, 8c
20,000 feet 3 -in. pipe, 14c

Other sizes proportionate prices. Complete stock Rotary drilling rigs, boilers, engines, pumps, etc. Texas Supply Co., 2016 Loraine St., Houston, Tex.

25,000-BARREL TANK

400-barrel agitator; two 400-barrel stills, condenser boxes; four 100- h. p. boilers; large quantity of 2, 3 4 and 6-inch fittings, all in A-1 condition; priced at a bargain. Call or write F. A. Sanders, 420 Mayo Bldg., Tulsa, Okla.; phone Osage 7037, or Jennings, Okla., phone 98.

FOR SALE—3,000 feet 3-inch 8-lb. National Upset drill pipe; 900 feet 2½-inch, 8-lb. National Upset drill pipe; 65 3-inch W. K. M. tool joints; 35 4-inch tool joints; 14 6-inch tool joints; 1 5⅞-inch Hughes Rock Bit, and other rotary supplies used in making one hole. Priced to sell f. o. b. Bloomington, Texas. For complete list and prices, address, H. W. Dodd, Victoria, Texas, or the Dodd Company, 501 Mayo Bldg., Tulsa, Okla.

FARMELECTRIC—The Ford parts plant. The light plant that the oil men have been looking for; every wearing part interchangeable with Ford engine. Repairs at any Ford garage or country store. Will run 365 days in the year if necessary. For price and terms write Charles S. Brown, State Distributor, 21 North Dewey Street, Oklahoma City, Okla.

PIPE, VALVES AND FITTINGS

Due to our large stock on hand, in pipe, valves and fittings, standard and extra heavy, flanged and screwed, from ⅛-inch to 24-inch diameter, we are offering attractive prices for immediate shipment. Pipe cut and fabricated to specifications. Arrangements for extended credit can be made. Commonwealth Pipe & Supply Co., Inc., District Sales Dept., P. O. Box 5081, Boston, Mass.

### FOR SALE—EQUIPMENT

FOR SALE—Pine and oak rig timbers; all sizes and lengths. Service and quality. W. T. White, Shreveport, La.

FOR SALE—A profitable second-hand pipe yard, also supplies and machinery. One of the best locations in the United States. Good for $40,000 or more a year profit. Address, Box A-76, care The Oil and Gas Journal, Tulsa, Okla.

USED MACHINERY—20, 50, 110, and 150-h. p. Bessemers; 35-h. p. Chicago Pneumatic; 65, 100 and 125-h. p. Millers; 401-foot Chicago Gas-driven Air Compressor, 100-lb. working pressure, Boilers, Steam Engines, Pumps, Air Compressors, Air Drills, Crushers, Rolls, etc. Ask for our used machinery stock sheet. Landreth Machinery Co., Joplin, Mo.

### FOR SALE—PETS

REGISTERED Bull Pups—Bulldog Park, 501 Rockwood, Dallas, Texas.

REGISTERED Pointer and Setter bitch; bred; $100; all papers on pups. Shelby Kennel, Bartlett, Tenn.

BOSTON TERRIER at stud—Fee, $15. Buddie Blink has 14 champions in his pedigree; his father is champion of all Bostons. Some of his pups for sale; no white heads. 114 South Denver, Tulsa, Okla.

### WANTED

WANTED—Offer for 100 shares Model Gasoline Co. Address Box A-41, care The Oil and Gas Journal, Tulsa, Okla.

WANTED—A reliable party to help finance the drilling of well on excellent structure, with good geology. Address, Operator, P. O. Box 955, Tulsa, Okla.

WANTED AT ONCE—Good first run casing sufficient for 2,500-foot well. Name lowest cash price and where located. Address Box A-80, care The Oil and Gas Journal, Tulsa, Okla.

CAPITAL ENLISTED

WANTED—An issue of securities to float in the East by reliable concern, on commission. Address Brokers, U. S. Realty Bldg., Suite 512, New York City.

WANTED—Drilling blocks in Oklahoma and Kansas; also acreage near drilling wells on structure. Address Box A-63, care The Oil and Gas Journal, Tulsa, Okla.

WANTED—Steel oil barge, capacity between 100,000 and 300,000 gallons. must be steel. Kindly furnish details. Metropolitan Filling Stations, Inc., 80 Boylston St., Boston, Mass.

ANYONE knowing the whereabouts of Mr. Will Whitson please communicate with Mr. Whitson's wife. Mrs. Grace Whitson, Box 272, Lankershim, Cal.

WANTED—Direct from owners, producing oil property in Kentucky, to operate on a percentage basis, property that owners are away or unable to give the proper care. Give full particulars first letter. Address Box A-30, care The Oil and Gas Journal, Tulsa, Okla.

DRILLING CONTRACT wanted on two blocks of 20,000 acres each, in eastern New Mexico. Well defined structure and excellent geological reports. Will furnish information upon application. Address M. F. Woods, Box 262, Ft. Sumner, New Mexico.

### HELP WANTED

MASTER PIPE FITTER—Competent man to handle all pipe work at refinery. Must have experience on high temperature and pressure work. Give age, past experience and references, salary expected. Address Box A-82, care The Oil and Gas Journal, Tulsa, Okla.

REFINERY SUPERINTENDENT to take charge of construction and operation of small plant. Address P. O. Box 1333, Great, Falls, Mont.

### HELP WANTED

MASTER MECHANIC — Competent, experienced man wanted to take charge of all mechanical and shop work, including new construction of refinery organization; approximately 100 men. State age, experience, reference, and salary expected. Address Box A-81, care The Oil and Gas Journal, Tulsa, Okla.

### POSITION WANTED

WANT POSITION as refinery superintendent. Information and reference on request. Married. Address Box A-88, care The Oil and Gas Journal, Tulsa, Okla.

MINING ENGINEER—25 years' experience; 10 years in Mexico, 5 years in South America; conversant with geology of oil; open for engagement; address E. Dargin, Hotel Sylvania, Denver, Colo.

TEN YEARS' practical experience as refiner and marketer; familiar with both crude oil and absorption plants. Desire connection with responsible concern. Address, Box 108, Mineral Wells, Texas.

WANTED—A position as boarding house manager in good camp in the oil field by a competent middle-aged lady. Eight years' experience; references. Address Box A-73, care The Oil and Gas Journal, Tulsa, Okla.

TRAFFIC MANAGER open for position; six years' experience with large independent refinery; A-1 references. Address Box A-83, care The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED drilling and construction foreman wishes to get in touch with company where ability means promotion. Foreign work preferred. Ten years' experience; best of references. Address Edwards, 1811 Congress Ave., Houston, Texas.

A COMPETENT and experienced oil man in field department; superintendent one of the largest producing companies in Wyoming four years; wishes similar connection with reliable company any place. Best references furnished on request. Address F. C. Lydon, Box 1236, Cheyenne, Wyo.

SALES MANAGER—I will double or quadruple your oil sales. Will take personal charge of sales and guarantee results. Thirty years' experience in this work; know every angle of the oil business; open for engagement. M. Scholl, 1830 East 29th St., Denver, Colo.

GRADUATE M. E., six years experience in general field and office engineering, survey, exploration and construction work in oil industry in Mexico, and South America, speaking Spanish, wishes long term contract with reliable oil company along these lines. Address Box A-86, care The Oil and Gas Journal, Tulsa, Okla.

SPECIAL KNOWLEDGE Venezuelan (Maracaibo) oil trade. Working knowledge Spanish; practical seaman; highest references. Desires appointment where enterprise and energy will secure permanency and advancement. Address Box 1-Z, care The Oil and Gas Journal, 30 Church St., New York City.

REFINERY SUPERINTENDENT—Who thoroughly understands and can direct the manufacture of high grade petroleum products, both light and heavy, including perfect emulsion neutrals, fully refined wax and bright stock from the different crudes, wishes to make connection with reliable company. Address Box A-87, care The Oil and Gas Journal, Tulsa, Okla.

YOUNG MAN, now employed as manager of very successful jobbing concern, desires change. Both refinery and natural gasoline plant experience in Mid-Continent and Eastern Fields. College graduate. Am best fitted for executive position in marketing end of business, but will consider anything with a future. Confidential correspondence invited. Address Box A-85, care The Oil and Gas Journal, Tulsa, Okla.

### BUSINESS OPPORTUNITY

IF INTERESTED in making an investment in oil, write Camden Investment Co., Box 171, Camden, Ark.

CAPITAL SEEKERS—Put your project before 470 Canadian brokers and bank managers; cost trifling, under my plan. Details free. Amster Leonard, First National Bank Bldg., Chicago, Ill.

OFFER 8,000 acres, solid block, for drilling contract; located in Goliad County, Texas. G. T. Powell, 428 Gunter Bldg., San Antonio, Texas.

WILL LOAN several strings of casing for interests in wells. All depths; any place. Address Box L. S., care The Oil and Gas Journal, Tulsa, Okla.

PARTY with few thousand dollars can secure substantial interest in safe going oil leasing company; profits large and safe as life insurance; investigate. Manley, 313 Herskowitz Building, Oklahoma City, Oklahoma.

CAPITAL WANTED—Have leases in Montana, shallow production in Wyoming; need money to develop. Will go in with reliable parties and take mine out of production; 30 years' experience in oil and mining. A. E. Beck, Osage, Wyo.

CRUDE OIL WANTED—What have you? Will build a pipe line from your property to the railroad, providing you have enough production. Give full details in first letter. Triangle Oil Co., Independence, Kans.

PRACTICAL OIL MAN wants partner with $5,000 to handle proposition, potentially the biggest thing in oil producing business. Not a one-well proposition, but continuing, permanent business. Address, A-72, care The Oil and Gas Journal, Tulsa, Okla.

OIL DEVELOPMENT—Brokers, salesmen, we will sell you a lease geologically approved in the Cumberland County, Kentucky oil field and drill you a well 800 feet deep for $5,000. This gives you a test for three pays. Make up your own syndicates or pools. Richardson & Goff, Columbia, Ky.

GEOLOGICAL ENGINEER, 12 years' experience examinations, reports, appraisals, management, oil properties, seeks a new engagement or proposition either with an oil company or with a banking or brokerage house interested in financing or specializing in oil. Principals only. Write Box A-12, The Oil and Gas Journal, Tulsa, Okla.

NEW MEXICO shallow drilling contract; 10,000 acres solid block; State lease; Roosevelt County. Report indicates oil should be found around 1,000 feet. Will give said block for test or will give block with completed well to said depth for $8,000. Contract let for test joining this block. W. R. Smith, Room 454, 29 South LaSalle Street, Chicago, Ill.

CAPITAL RAISING — Campaigns planned, written, printed — everything complete ready to mail to investors. Twenty years' experience handling investment advertising. Clients all over America. Big, illustrated book, "How to Raise Capital" free if you submit detailed outline of your proposition. Ernest F. Gardner, L-511 Ridge Arcade, Kansas City, Mo.

### COMMERCIAL LANGUAGES

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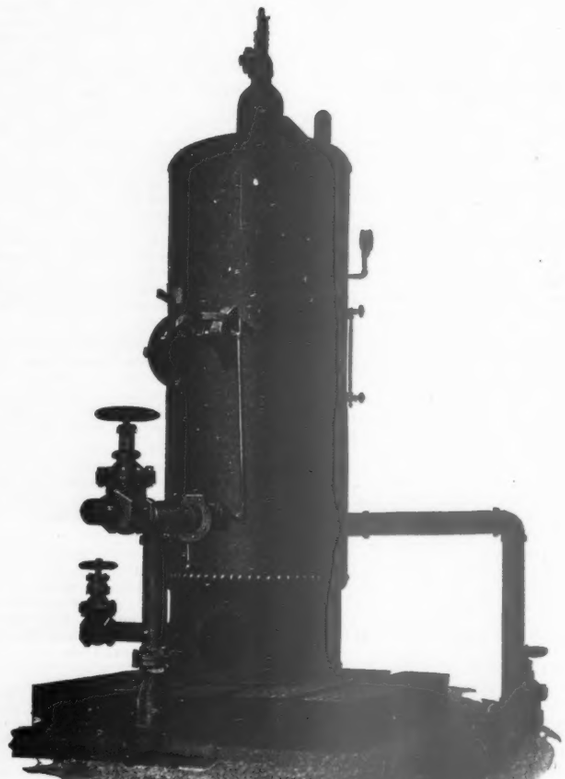
# Gas Saving and Saving Gasoline



The great profits from retaining the gasoline in the crude oil was demonstrated and brought about to the oil producer by the invention of the Trumble Oil and Gas Separator. This separator retains the gasoline in the oil by maintaining a pressure upon both oil and gas during the time the gas is leaving the oil, thereby insuring a better price for the oil as well as drying the gas.

The oil producer must use appliances to conserve both oil and gas in order to make his production pay.

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*Information on Application*

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**Eastern Representative**

**C. F. CAMP**

**311 Atco Bldg., P. O. Box 289, Tulsa, Oklahoma**


## Late Fields

### OKLAHOMA

Four of the big gushers which raised the hopes of operators in the Hewitt Field recently when they were opened up for enormous production, have ceased to flow. They are the Carter Oil Co. and Southwestern Petroleum Co.'s No. 40 Noble, C SE NW SE, Section 21-4s-2w; No. 42 Noble, SW NE NE, same section; No. 41 Noble, C NW SE NE, same section; and the Carter Oil Co.'s No. 20 Ward, C NE NW NE, same section. In their prime, these wells combined put about 15,600 bbls. into the tanks, and the last gauge on Nos. 40 and 41 Noble showed 5,655 bbls. No. 20 Ward and No. 40 Noble were being swabbed in an effort to revive their flow and No. 42 was being deepened. The Carter's No. 19 Ward, C SE SW NE, Section 16-4s-2w, flowed 40 bbls. at the latest report, and the Carter & Southwestern's No. 39 Noble, C NW NE NE, Section 21-4s-2w, made 20 bbls. during a 24-hour period. Latest gauge on the Wolverine Oil Co.'s No. 111 Dillard, southeasterly extension to the field, was 1,110 bbls.

The Gilcrease Oil Co. and Papoose Oil Co.'s south offset to the discovery well in the 9-9-country, west of Wetumka in Hughes County, NE cor. NW, Section 9-9-9, was good for 550 bbls. in the first 16 hours, having made 60 bbls. the first hour.

In the Burbank, the Gypsy Oil Co. topped the sand at 3,000 feet in its No. 13 Gladys McComb, SW cor. NW NE, Section 23-27-5, and it flowed at 3,009 feet. At 3,051 feet, it was good for 25 bbls. an hour.

Production in the Papoose Oil Co.'s discovery well, No. 1 Simon, SE cor. SW, Section 4-9-9, Hughes County, was stopped when water broke in. It was thought to be coming around the casing and the 6-inch and 8-inch strings were being pulled to reset.

In the Wewoka Field, the Dixie Oil Co.'s No. 3 Foster, C SW SW NW, Section 33-8-8, found a sand at 3,152-57 feet and made 45 bbls. the first hour, and about 5,000,000 feet of gas. In the northwestern part of Seminole County, the H. F. Wilcox Oil & Gas Co.'s No. 1 Bruner, NW cor. SE SW, Section 15-10-8, topped the sand at 3,115 feet and was estimated good for 15,000,000 feet of gas.

The Atlantic Oil Producing Co.'s No. 1 Fixico, SW cor. SE SE, Section 29-16-8, was spraying oil with the hole full from the Dutcher sand at 3,250 feet, the bit being about a foot in the sand.

A good producer was added to the Burbank extension by the Prairie Oil & Gas Co. when its No. 2, SE cor. NW, produced at the rate of 75 bbls. an hour from sand at 2,909-26 feet.

### GULF COAST

HOUSTON, Tex., Feb. 5.—The Gulf Production Co.'s No. 9 Davis at Big Creek, a semi-pool in Fort Bend County, blew in at 2,790 feet and is flowing 1,000 bbls. by heads. The Republic Production Co.'s No. 74 Dolbear at Hull is flowing 3,500 bbls. at 2,960 feet.

### NEW YORK GASOLINE TAX

ALBANY, N. Y., Feb. 4.—Gasoline is to be taxed at the rate of 2 cents a gallon when used in automobiles in New York State, under a bill soon to be introduced by the assembly motor vehicle committee. It is figured that there will be a revenue of $18,000,000. At the same time license fees will be reduced to $3 on pleasure cars, while the cost of plates to trucks will be cut in half.

This will bring in $4,500,000 more, or a total of about $22,500,000 as against about $20,000,000 derived from the present scale of licenses. This is based on the belief that New York State will contain 1,500,000 cars by the time the law becomes effective.


## CLASSIFIED WANTS

### MAILING LISTS

GUARANTEED Mailing Lists (or calling lists) of oil company purchasing agents and superintendents throughout entire Mid-Continent Field. Oil Industry Register, P. O. Box 1742, Tulsa, Okla.

107 NAMES of lease buyers of largest oil companies in Tulsa. For sale by Oil Industry Register, P. O. Box 1742, Tulsa, Okla. Phone Osage 574.

### WELL LOGS

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### TOO LATE TO CLASSIFY

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DRILLING BLOCKS—5,000 acres for test in Oklahoma. Good geology; excellent location; liberal contract. Other large blocks in Arkansas, Texas, New Mexico. Full data on request. J. H. Montgomery, 702 Oil Exchange, Oklahoma City, Okla.

STOCK SALESMEN—Corporation engaged in mining, preparing and marketing chemicals wants to connect with reliable party who can dispose of $30,000 issue on very profitable commision. "Sanpete," 1039 South Second West St., Salt Lake, Utah.

IF INTERESTED in Osage County, Oklahoma oil lease, writer might have what you desire. Box I, Nelagoney, Oklahoma.

TAKING OIL LEASES on geological structure, Logan County, near Crescent. Want three men to share equal interest. Reasonable proposition, splendid chance. Two wells drilling, three more to be drilled this spring. Write Mead Johnson, 810 East Cleveland, Guthrie, Okla.

WANT POSITION as field manager for large oil company or private individual; am graduate mining engineer; age 35; thorough knowledge of oil geology and drilling operations; have had four years' executive experience in State department. Address Box K. D., care The Oil and Gas Journal, Tulsa, Okla.

YOUNG MAN—Now employed with old established marketing company; experienced in both purchasing, selling and office; extensive acquaintance with Mid Continent refiners and consuming trade in Central States, desires position with greater opportunity for advancement; salary reasonable to start. Address Box A-89, care The Oil and Gas Journal, Tulsa, Okla.

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# East Central Texas

**By Staff Correspondent.**

CORSICANA, Tex., Feb. 4.—Oil companies in the Powell Field, by cleaning out wells and otherwise putting their producing properties in shape to give the best results, have not only stayed a decline in production but have increased the output so that now it is a little less than 100,000 bbls. a day and the average for the past week was 97,000 bbls.

The Tidal Oil Co. worked over its No. 1 Bressie and brought the production up to close to 2,000 bbls. a day.

The E. L. Smith Oil Co. completed two shallow wells on its Cerf property good for 75 bbls. each. The same company has started drilling No. 2 Cerf. The Simms Oil Co. is drilling Nos. 8 and 9 Rose, all bound for the deep sand.

Below will be found a statement of production by company and lease as of January 28. It shows a total production on that day of 96,058 bbls. from 607 wells. The Humble Oil & Refining Co. had a total of 24,616 bbls.; Gulf Production Co., 13,384 bbls.; Humphreys Oil Co., 12,065 bbls.; Simms Oil Co., 7,582 bbls., and Tidal Oil Co., 5,546 bbls. These were the largest producers in the field.

**PRODUCTION IN POWELL FIELD**
**January 28, 1924**

| | No. Wells | Prod. |
|---|---|---|
| Atlantic Oil Prod: | | |
| Irvine | 13 | 1,544 |
| Kellum | 10 | 2,244 |
| Barclay & Meadows: | | |
| Cerf | 3 | 242 |
| Bass and others: | | |
| Gentry | 3 | 685 |
| Brooks, R. E.: | | |
| Cerf | 7 | 671 |
| Collins Wheelock: | | |
| Kent | 2 | 69 |
| Elliott and others: | | |
| Hill | 2 | 725 |
| Farrish-Collins: | | |
| T. & B. V. R. R. Fee | 2 | 830 |
| Gulf Prod. Co.: | | |
| C. Barron | 7 | 517 |
| Blumrosen | 3 | 108 |
| Bush | 3 | 470 |
| Christian | 6 | 264 |
| Crews | 17 | 9,627 |
| Gentry | 7 | 248 |
| Murchison | 6 | 1,648 |
| McKie "A" | 1 | 104 |
| Smith | 5 | 264 |
| Witherspoon | 8 | 134 |
| J. K. Hughes Dev. Co.: | | |
| McKie | 14 | 375 |
| Alexander | 5 | 1,350 |
| Humble O. & R. Co.: | | |
| Blumrosen | 4 | 247 |
| Brown | 6 | 742 |
| Cerf A | 9 | 695 |
| Cerf B | 3 | 144 |
| Crews | 10 | 1,972 |
| Davis | 16 | 3,100 |
| Fleming "A" | 8 | 597 |
| Fleming "B" | 3 | 319 |
| Gentry "A" | 10 | 1,155 |
| Gentry "B" | 3 | 580 |
| Gentry B. A. | 1 | 330 |
| C. B. Hill | 2 | ... |
| Humphries | 22 | 3,635 |
| Irvine "A" | 5 | 350 |
| Irvine "C" | 10 | 973 |
| E. L. Kent | 3 | 304 |
| G. Kent | 13 | 4,218 |
| R. I. Kent | 1 | 31 |
| McKie "A" | 5 | 105 |
| Murchison | 3 | ... |
| Ramsey "A" | 9 | 1,671 |
| Ramsey "B" | 13 | 2,745 |
| Pugh | 7 | 1,303 |
| Humphreys Oil Co.: | | |
| J. O. Burke | 1 | 35 |
| Fair | 1 | 30 |
| Kent | 8 | 210 |
| Kenner | 2 | 10 |
| Kent, R. I. | 3 | 45 |
| McKie | 62 | 11,675 |
| Springfield | 2 | 60 |
| Garland Kent: | | |
| Fleming | 17 | 1,840 |
| Kirby Pet. Co.: | | |
| Brown | 5 | 200 |
| McKie | 2 | 824 |
| Fleming | 2 | 87 |
| Mitchell & Jones: | | |
| Burke | 2 | 280 |
| McMann O. & G. Co.: | | |
| Chapman 53 acres | 10 | 1,590 |
| Chapman 1,145 acres | 6 | 1,642 |
| Mutual Oil Co.: | | |
| Howell | 6 | 2,020 |
| New Domain O. & G. Co.: | | |
| Kent | 5 | 210 |
| Parker and others: | | |
| Cerf "A" | 2 | 50 |
| Cerf "B" | 1 | 1,094 |
| Rozana Pet. Co.: | | |
| Blumrosen | 4 | 43 |
| McKie | 8 | 191 |
| McKie "A" | 8 | 1,936 |
| Simms Oil Co.: | | |
| Blumrosen | 3 | 128 |
| H. B. Boyd | 4 | 4,487 |
| J. A. Boyd | 1 | 20 |
| H. H. Boyd | 1 | 1,006 |
| Kellum | 3 | 751 |
| Rose | 7 | 1,190 |
| Skelly Oil Co.: | | |
| Gentry | 2 | 15 |
| Keith | 7 | 870 |
| Ramsey | 3 | 160 |
| E. L. Smith Oil Co.: | | |
| Keith | 8 | 2,467 |
| Ramsey | 4 | 227 |
| Stroube & Stroube: | | |
| Hill | 1 | 200 |
| Sun Oil Co.: | | |
| Barron | 1 | 10 |
| Kent | 4 | 690 |
| Springfield | 1 | 24 |
| Terrell Prod. Co.: | | |
| Humphries | 1 | 65 |
| The Texas Co.: | | |
| Fleming | 12 | 2,177 |
| R. T. Kent | 16 | 1,222 |
| McKie | 8 | 380 |
| Tidal Oil Co.: | | |
| Bressie | 1 | 300 |
| Crews | 7 | 1,342 |
| Phillips | 11 | 1,937 |
| Ramsey "A" | 8 | 1,473 |
| Ramsey "B" | 7 | 238 |
| Thompson | 4 | 35 |
| T. & B. V.: | | |
| R. O. W. | 2 | 425 |
| Upchurch: | | |
| Fleming | 1 | ... |
| U. S. Texas Oil Corp.: | | |
| Burke | 4 | 330 |
| Ramsey | 4 | 70 |
| Webster and others: | | |
| Boyd | 1 | ... |
| Witherspoon: | | |
| Burke | 10 | 2,460 |
| Scurry-Cranfill & Reynolds: | | |
| Harvard | 2 | 150 |
| Hoosier and others: | | |
| Hill | 1 | 175 |
| Willis Bennett: | | |
| Woolens | 1 | ..... |
| Miscellaneous heavy oil: | | |
| Springfield & Christian | 10 | 535 |
| Total | 607 | 96,058 |

The pipe line receipts from each lease are not yet available as of the date of this report, but below is a total and daily average of runs from wells for the week ending 7 a. m., January 27, 1924:

| | Total | Dy.Av. |
|---|---|---|
| Atlantic | 1,487 | 212 |
| Cobden O. & F. Co. | 2,545 | 363 |
| Galena Signal | 12,243 | 1,749 |
| Gulf | 87,045 | 12,435 |
| Humble | 301,096 | 43,013 |
| Magnolia | 48,904 | 6,986 |
| Mutual O. Co. | 12,950 | 1,850 |
| National | 966 | 138 |
| Prairie | 46,656 | 6,665 |
| Simms | 33,971 | 4,852 |
| Sinclair | 24,668 | 3,524 |
| The Sun Co. | 5,068 | 724 |
| Texas P. L. | 18,383 | 2,626 |
| Tidal O. Co. | 37,800 | 5,400 |
| U. S. Tex. | 2,450 | 350 |
| Total | 636,232 | 90,858 |


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Especially adapted for wells making sand or with worn-out working barrels or leaky valves. On new wells use McGregor Seat, Part M.

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Exclusive Improvement on Barrel

This new Cup Packer on top prevents barrel from sticking and sand from settling in between tubing and outside of barrel.

Can be applied to any McGregor Working Barrel in oil fields. Can be ordered separately; 30,000 in use. If you wish cup packer, specify same on order.

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"*Buffalo*" Class "S" Pumps are easily inspected without disturbing piping.

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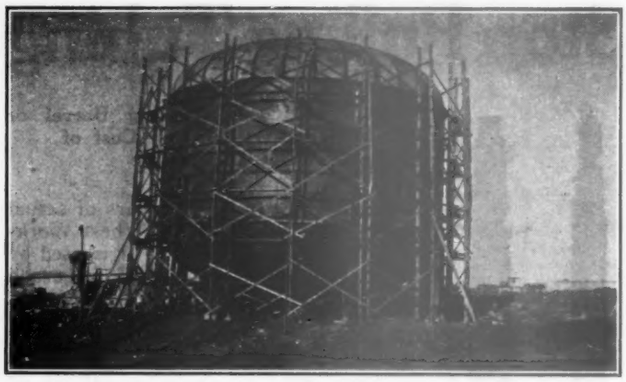

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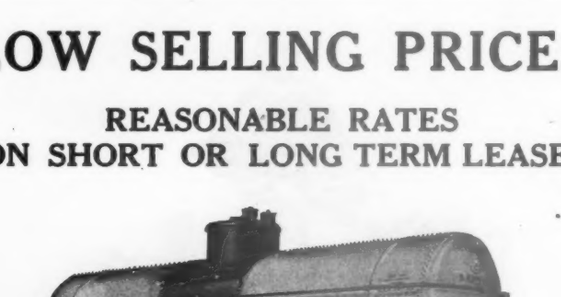


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## Smuggling Gasoline To British Columbia To Evade 3-cent Tax

VICTORIA, B. C., Jan. 29.—British Columbia is faced with the problem of curbing the smuggling of gasoline from the United States. Drastic measures are being taken by the Provincial authorities to cope with "gasoline bootlegging," and Provincial police and Canadian customs officers will cooperate, John Hart, minister of finance, announces.

The object of smuggling gasoline is to evade the British Columbia Government's new tax of 3 cents a gallon on all sold in this Province. It is profitable to pay the cost of shipping drums of gasoline across the border in trucks to avoid the payment of this tax, according to officials charged with the duty of stopping it.

The length of the British Columbia boundary and its unsettled and rugged state make the task of the law officials extremely difficult. It is these conditions that thwart American officers in their efforts to stop liquor smuggling out of this Province.

British Columbia is now levying a tax of half a cent a gallon on all fuel oil imported from the United States. The object of this tax is to raise revenue, and also to protect British Columbia coal mines from the serious competition of American oil. Heavy importation of American oil has reduced the production of British Columbia coal mines greatly in the last few years.

## CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended January 26, totaled 1,182,000 barrels, a daily average of 168,857 barrels, against 978,000 barrels, a daily average of 139,714 barrels for the week ended January 19.

| | Wk. End. Jan 26 |
|---|---|
| At Atlantic Coast Ports: | |
| Baltimore | 179,000 |
| Boston | 77,000 |
| New York | 464,000 |
| Philadelphia | 307,000 |
| Total | 1,027,000 |
| Daily average | 146,714 |
| At Gulf Coast Ports: | |
| New Orleans and Baton Rouge | 155,000 |
| Daily average | 22,143 |
| Total Atlantic and Gulf Coast Ports | 1,182,000 |
| Daily average | 168,857 |

Imports of crude and refined oils at the principal ports for the week ended January 26, totaled 1,295,000 barrels, a daily average of 185,000 barrels, compared with 1,528,000 barrels, a daily average of 218,285 barrels for the week ended January 19.

| | Wk. End. Jan 26 |
|---|---|
| At Atlantic Coast Ports: | |
| Baltimore | 85,000 |
| Boston | 257,000 |
| New York | 283,000 |
| Philadelphia | 45,000 |
| Others | 241,000 |
| Total | 911,000 |
| Daily average | 130,143 |
| At Gulf Coast Ports: | |
| Galveston district | 284,000 |
| New Orleans and Baton Rouge | 40,000 |
| Port Arthur and Sabine district | 60,000 |
| Total | 384,000 |
| Daily average | 54,857 |
| At all U. S. Ports: | |
| Total | 1,295,000 |
| Daily average | 185,000 |

## RECEIVERS FOR INDIAHOMA

OKMULGEE, Okla., Feb. 2.—The Indiahoma Refining Co. and the Okmulgee Northern Railway Co. were placed in the hands of receivers here by Judge J. Harry Swan in the Superior Court, after application for the receivership had been filed by Hugh G. McCorkle and Irwin G. Hulsey of St. Louis, Mo., trustees under the will of Gustav. Wamsganz. John A. Price, banker, and Joseph I. Pitchford, attorney, both of Okmulgee, were named joint receivers of both corporations.

## TO DRILL OIL TEST IN PONTOTOC COUNTY

ADA, Okla., Feb. 4.—The Wrightman Oil Co. of Tulsa has contracted with the Goldelline Oil Corp. of Oklahoma City to drill a test for oil on the west side of the northeast quarter of Section 24-4-4, Pontotoc County, on a structure reported upon by Dr. J. B. Umpleby, former head of the department of geology of the State University, and others. The location is southwest of the Bebee Pool and north of that being developed by the Valerius Oil Co. near Roff.

The location is on a structural trend southwest from the Wewoka and Konawa producing areas and it is intended the well will reach the Simpson sand which may be expected there at about 2,000 feet. Subsurface surveys of the Ada district show the Simpson to have been found east of Ada at 2,950 feet, southeast at 920 feet, northwest at 2,500 feet and in the southwestern part of the county at 1,405 feet to 2,000 feet.

A recent gauge of the Valerius well, in 28-3-4, which was drilled 19 feet into a shallow sand to 860 feet, showed it to produce 300 barrels in 24 hours. A well in the southwest of the northeast of 31-5-5, in which a sand was found between 1,800 and 1,900 feet, is reported to have flowed 75 barrels an hour recently when opened. This location is a little northwest of the Bebee Pool where four producing sands were found to 2,100 feet.

Widespread activity is promised in the southwestern part of Pontotoc County and adjoining areas of Garvin and Murray counties. Operators believe a shallow pool of consequence may be developed there. Some sands of unusual thickness have been found. The lower sand in the original Bebee well is 100 feet thick. In the vicinities of Roff, Vannoss, Dolberg and Stratford and several shallow sands containing oil that are 20 to 70 feet thick.

## REPORTED LOCATION NEAR RUSH SPRINGS

RUSH SPRINGS, Okla., Feb. 4.—The Marland Refining Co., which some time ago leased 7,000 acres east and northeast of Rush Springs, is reported to have made a location for a well in Section 27-4-5, on the Bailey structure. After the Gant oil discovery in Section 31-4-5 the Roxana Petroleum Corp. is said to have offered $120,000 for a one-half interest in the Marland block.

Walter Gant of Oklahoma City, who is thought to have sealed up eight or nine feet of oil sand in his well in Section 31 while cementing to set casing, has a production of about 12 barrels from a few feet of sand. This well is to be drilled deeper. The sand was found at 1,887 feet. This location and that of the Marland company are said to be on the structure that connects the Ruberson Pool of Garvin County with the gas area of Grady County.

Another producing oil well on this structure is the Joe Ray well, in Section 28-3-5. Oil sand to have a gravity of 41 was found at 960 feet and the well produced 15 barrels daily. It was drilled into a gas sand at 1,395 feet.

## MARLAND URGES CONSERVATION

"At the risk of being ridiculous, two years from now," E. W. Marland [illegible] in the California Mining & Oil Bulletin, "I hazard the opinion that before the end of 1925 we shall be unable to supply the demand for petroleum in the United States from our production in the United States, and that we shall greatly regret our failure to adopt the policy of reasonable conservation of petroleum resources. The leaders in the petroleum industry should squarely face the fact of the future shortage of oil, and should, in this day of plenty, prepare for that shortage. We cannot escape just publie criticism if we fail to do this."

# LECTURE ON ORIGIN OF PETROLEUM BROADCAST FROM CASPER STATION

CASPER, Wyo., Feb. 4.—The Casper Realtors, an organization of real estate dealers, has equipped a radio broadcasting plant which includes a series of lectures on the oil business, opened with a talk on the origin of petroleum by Frank B. Taylor, Rocky Mountain staff correspondent of The Oil and Gas Journal. Each Tuesday night some prominent scientist or oil expert will lecture. The program follows: How Geologists Find Oil Fields, Frederick Wood, delivered January 28; How Wells Are Drilled, M. J. Foley and Fred Steele, February 4; How Oil Is Produced, E. L. Estabrooke, February 11; Pipe Lines and Tanks, V. E. Hanson and L. L. Langworthy, February 18; Refining of Petroleum, L. A. Reed, February 25; Lubricating Oils, F. E. Capen, March 3; Manufacture of Candles, Dr. Diggs, March 10; Casinghead Gasoline, D. E. Weidner, March 17; Marketing Natural Gas; Ernest Marquardt, March 24.

Supervisor M. J. Foley has drilled wells over this region and Fred Steele is the expert driller of the Bureau of Mines for the Rocky Mountain region. Petroleum Engineer E. L. Estabrooke is the petroleum engineer of the Midwest and Standard interests and Geologist Frederick Wood is conducting research work for the Standard of Indiana. V. E. Hanson and L. L. Langworthy are the two engineers in charge of the Midwest and Standard pipe line and tank farms and L. A. Reed is one of the oldest refiners. F. E. Capen is the head of The Texas Co.'s refining plant here and especially versed in lubricating oils and Dr. Diggs is the head of the candle and wax departments of the Standard of Indiana. D. E. Weidner is the head of the gasoline department of the Midwest Refining Co. and Geologist Ernest Marquardt is vice president of the New York Oil Co., which supplies Casper and the refineries with natural gas from the Poison Spider Field.

### Formation of Oil Fields

Mr. Taylor's talk last Tuesday follows:

"In the formation of our oil fields, time as we reckon it cannot be considered, the ages spent in the making of this old world of ours were vast, so vast indeed that a year or a century were as nothing. This great world of ours is but an atom in the celestial universe and the atom of science is to the size of the world as the space of a century as we reckon was to the geological ages.

"After the period when this earth was a molten mass and the surface cooled and the seasons came and the archean rocks were changed into sandstone and shale and laid down, layer upon layer in the depths of the seas; there appeared the first life, this was only a form of fungi. Then appeared vegetation, probably a form of seaweed and then life spread over the seas and through them, forms were born, lived their alloted space and died and in their death made a third layer that we call limestone which is made up of the remains of life with the addition of particles from the sands and shales of the earlier rock. Thus we have the three great divisions of our earth's crust of today, sandstones, shales and limestones.

"There are three main theories as to the origin of our petroleum and each has its sponsors among the scientists who are able to bring strong proof in support of their claims. The inorganic theory is based upon the fact that water will produce the chemical compounds that form petroleum when brought into contact with metallic carbides. For example, if we were to take limestone and heat it in the electric furnace to a very high temperature, the limestone is changed to a substance we call acetylene or carbide, then on contact with water, this substance undergoes a chemical change and produces a gas that is practically the same as the natural gas of the oil fields. Such transformations are easily brought about with the temperatures and conditions we find in the earth. Then again, it is possible to take the fish known as the herring and placing this sea product in a retort, to distill true petroleum oil by the application of heat. This has been done in the laboratories and it was further computed that if all the herring now living in the sea were so treated, this world would have sufficient petroleum for all its needs as a result. It is further possible to take common cod liver oil and from it make an oil that cannot be told from the common kerosene oil of commerce.

### Vegetable Theory

"Again, there are vast areas of the present day oceans covered with masses of seaweed vegetation; it can be easily conceived how this seaweed could be deposited on the bottom of a shallow ocean bed, then covered with a layer of silt, and, after ages had passed and the overlay had become heavier through further deposits, the mass of vegetation would gradually change to a substance resembling petroleum.

"A few years ago it was found necessary to sink a large hole in the Chesapeake Bay for a foundation for a lighthouse. The excavators found sand for about 50 feet, then fine silt or mud, and then a layer of blue clay and under the latter they dug into a mass of vegetation that grew in some past age and which exuded large quantities of methane or natural gas. One of the workers inadvertently lighted a match and the resultant explosion took a heavy toll of life besides destroying the work.

"In all the oil regions of the United States there are beds of shale, which upon examination under powerful microscopes, disclose remains of prehistoric life that was born, lived and died and was carried down to its resting place in these sedimentary muds at the bottom of the seas. The scientists have reached the belief that from these shales have come out petroleum supplies of our oil fields, yet at the same time, there are other fields, especially in other countries, that show distinct signs of origin according to the inorganic theory.

"For example there is a shale in the Rocky Mountain region we call the Mowry, which abounds in minute organisms of prehistoric life and this shale layer is believed to be the origin of our Rocky Mountain oil fields. A great question often asked is how the oil, if it originated in this shale, is always found in sandstones.

### Why Found in Sandstones

"The answer to this phase is rather long, in the first place, we have at present great beds of shale containing vast quantities of petroleum here in Wyoming and Colorado, but the petroleum is so scattered through the shale as to make its abstraction a matter of great difficulty. So long as petroleum can be produced from wells as now done, the ultimate cost to the consumer will be so low as to preclude the extraction of oil from the shale beds. It may be likened to the gold in sea water, we know there is gold in seawater, but the cost of obtaining it is so great that the resultant gold does not come anywhere near paying for its extraction.

"It can be readily understood that with the great weight of the earth's layers that form the crust of our world the pressure upon the central part is almost inconceivable. As the earth cools we have changes due to the contraction of this crust and upheavals and earth movements that change the surface form. Over in Italy there is a little city of Puzzoloni, on the shores of the Mediterranean Sea, and here the ancients built a temple to the god Seraphis long before the Crucifixion on Calvary. In the waters of this sea there lives a small shellfish that has the power to bore its

(Continued on Page 125)

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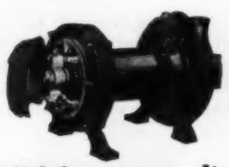

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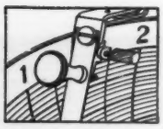
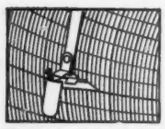
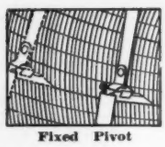
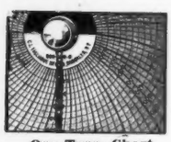


Pen Adjustments for Pressure and Position


Fountain Pen Point


Fixed Pivot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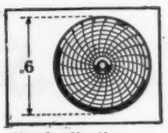

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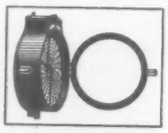
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# ROCKEFELLER GIFT FOR RESEARCH HOLDS HOPE FOR PETROLEUM PROJECT

The appropriation of $40,000 to Dr. Niels Bohr's laboratory at the University of Copenhagen by the Rockefeller International Education Board, so that he can continue his revolutionary research into the structure of the atom, and so that American and other scientists can share in his work, is regarded by scientists as a striking example of the growing recognition accorded to scientific research.

It was taken also as suggesting the possibility of the Rockefeller board being interested in the proposal for the creation of a National Institute of Petroleum Research outlined in The Oil and Gas Journal. There would be a distinctive appropriateness in the linking of the name of the founder of the general education board with the establishment of a great institution for the further development of the industry with which his name is synonymous the world over. No more imperishable monument or of vaster beneficial potentialities to mankind could be imagined than a decision by the Rockefeller education board following this gift for research to the Danish University than an initial endowment for the foundation of an Institute of Petroleum Research.

### To Aid Pure Research

The need for such an institution to assure the fullest use of petroleum and its products, particularly should there be a decline in the production of crude oil, is not open to argument. Research is being promoted by several individual companies but it has often happened that the greatest discoveries have fallen to scientists engaged in pure scientific inquiry without immediate reference to commercial results, a form of inquiry not likely to be developed under merely commercial auspices.

Laymen, and even some scientists, it was pointed out, often ignore the poor, plodding research student in his laboratory, unwitting of financial gain, and studying some complicated problem in pure science, that seems to have no application whatsoever to any practical question of everyday life. It is to the exponents of applied science, who have given to the world inventions of immediate practical use, that most of the laurels as well as financial rewards have gone in the past.

Now, however, the world is beginning to realize more than ever before that the wonderful inventions that have revolutionized modern life would have been impossible without the patient, unrewarded research work of the creative scientists in the laboratories. The telephone and radio, for example, could never have been developed to their present state except for the monotonous toil of the researchers who studied the atom and electron with no other object in view than to find out all they could about these infinitesimal particles of matter.

One of the research scholars who played a leading part in such work—Robert Andrews Millikan of California, who received the Nobel Prize for Physics in 1923 for his isolation and measurement of the electron—expressed the attitude of modern science toward the practical value of pure science recently in an address on the occasion of his receiving the Edison Medal. Commenting on the fact that all previous recipients of the medal had been advocates of applied science, Professor Millikan complimented the American Institute of Electrical Engineers, which awarded the medal, for adopting a new policy, in recognizing a type of activity that does not lead to immediate industrial advances as of vital practical importance to the world.

### Conceptions Most Important

"For, in the last analysis," said Professor Millikan, "the thing in this world which is of most supreme importance, indeed the thing whch is of most practical value to the race, is not, after all, useful discovery or invention, but that which lies far back of them, namely, the way men think—the kind of conceptions which they have about the world in which they live and their own relations to it.

"It is this expanding of the mind of man, this clarifying of his conceptions through the discovery of truth which is the immediate object of all studies in the field of pure science. Behind that object, however, is the conviction that human life will ultimately be enriched by every increase in man's knowledge of the way in which nature works, since obviously the first step in the beneficent control of nature is a thorough understanding of her. * * *

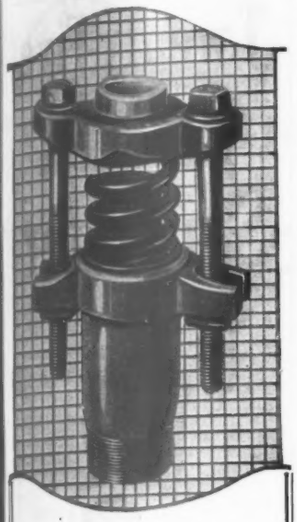
"And if you wish to see the practical result of 'the way men think,' look at the difference between our own civilization and the static civilization of Asia, where Nirvana is the goal of human life and a large fraction of the population reaches it quickly through starvation. Why is it that 'fifty years of Europe is better than a cycle of Cathay?' Is it not simply because in certain sections of the world, primarily those inhabited by the Nordic race, a certain set of ideas have got a start in man's minds, the ideas of progress and responsibility?

"And these ideas have come about, I think, because in a few sections of the earth men have been led to follow simply the urge to know. First, to know this earth geographically, to explore it clear to the North Pole and to the South Pole, even when they knew there was not the slightest prospect of growing wheat or potatoes there. But now the days of geographical exploration are gone, and yet it is the same urge which leads on the descendants of these voyagers into the unknown—the astronomer to explore the heavens, however useless that may be; the physicist to study the properties of matter and radiant energy whether he sees any immediate use for his results or not; the biologist to delve as far as he can into the secrets of life and organic growth."

### England Aids Researchers

The recognition of the importance of seemingly unimportant research has been particularly recognized in England, where the Royal Society has adopted a policy of what amounts to "the endowment of research." Certain large gifts recently made to the Royal Society are now being administered in creating greater opportunities for experienced investigators of already proved capacity in research. Such men in England have often been obliged to devote much of their time to manifold duties required by their occupation of positions on the staff of universities or institutions. Teaching, administrative duties, etc., have diminished the time available for research. Under the new policy of the Royal Society, research will become the primary duty instead of a sideline of such men, and research is becoming recognized as a definite separate profession.

This ideal of endowing research, giving men who had already had success an opportunity to devote their whole time and energy to further research, is followed in the Rockefeller gift to Dr. Bohr. It is an ideal that is spreading rapidly in scientific and educational circles in America as well as in Europe. Professor Maynard M. Metcalf of Oberlin read a paper on "Research and the American College," at the recent Cincinnati meeting of the American Association for the Advancement of Science, in which he pictured an imaginary college in which research should play its proper part. He urged that college students be taught research methods from the very beginning of their course, so that they might learn to do their college work with "that fine attitude which can come only to one who has once caught the spirit of produc-



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scholarship, the spirit of research." Such a college, he said, would give each of its teachers half or more of his time and energy free from teaching and for use in research.

"Scientific knowledge and its ramifications are so increasing and problems for solution are being disclosed in such great numbers," said Mr. Metcalf, "that we need, and shall need, more and more research men of proper training."

It is the hope of many American men of science that the recognition of the importance of research, shown in the Rockefeller grant to Dr. Bohr, will spur the movement to develop more research laboratories in this country and more American colleges and universities specializing in research.

## VENEZUELAN PROSPECT AS BRITISH SEE IT

The petroleum industry is attracting great attention in Venezuela says a British Department of Overseas Trade report. The presence of petroleum in Venezuela has been known for many years, but its exploitation on commercial lines is of recent date. The capital invested in the industry is practically all British or American. For many years British capital predominated, but American investments have of late been considerably augmented, and, today, probably as much land is held by American concerns as by English. It is generally thought, however, that the most promising regions are in the hands of companies controlled by British capital.

Since the boom in 1918, practically the entire surface of the country and all its navigable rivers, lakes and ocean shore line have been covered by one form or another of petroleum concession. But the only two regions known to contain productive petroleum at present are the State of Falcon and the Maracaibo Basin. There is no uniformity in the taxation of these concessions. At first no tax was imposed on production, merely a surface tax on the land comprised in the concession. Subsequently an exportation tax was introduced, and later still an exploitation tax of a fixed sum per metric ton.

The total crude petroleum exploited in Venezuela by the Caribbean Petroleum Co., a company registered in America but allied with the Royal Dutch-Shell interests, to December 31, 1922, is as follows (up to date the only petroleum exported from Venezuela has been that produced and shipped by this company): 1917, 12,791 metric tons; 1918, 48,306 metric tons; 1919, 45,914 metric tons; 1920, 69,539 metric tons; 1921, 218,146 metric tons; 1922, 334,923 metric tons—total, 729,619 metric tons. One of the problems confronting the industry is that of transportation. The two important arteries for waterborne transportation in Venezuela are the Lake of Maracaibo and the Orinoco River, neither of which at the mouth has a draft of over 11 feet even at high tide. The outlook of the industry is decidedly promising, and when transportation facilities have been improved a new impetus will no doubt be given to production.

## NO CURB PUMP FOR INNS

A police inspector told the magistrates at Willesden, England, that he was instructed by the commissioner to call the attention of the justices to the fact that the license of a public house in Willesden-lane had set up two petrol pumps outside his licensed premises without the permission of the court or the commissioner. The petrol tank constituted a danger to the customers using the house. Moreover, a license had no right to start a second business on his licensed premises. The chairman said that the sale of petrol from outside a public house was an inducement to drivers to drink.


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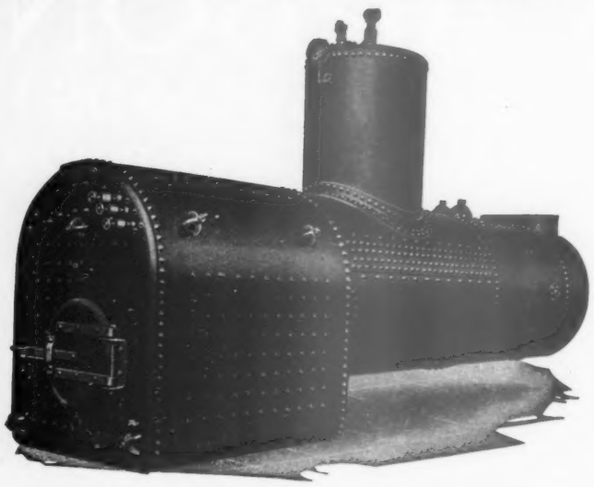

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## Magnetism in Holes May Affect Drilling As Well as Fishing?

We remember some 12 or 13 years ago, says London Oil News, a discussion on magnetism and its effects upon the straightness of oil wells. If our memory serves us well there was a clever excuse made by a driller who got a crooked hole; that the magnetic attraction which continued during the whole time he was drilling had gradually drawn the tools out of the perpendicular. Albert Millar, who is a thoroughgoing oil well drilling man, if ever there was one, has the following note on a kindred subject in "Nature."

In practical oil field work many phenomena are met with and investigated from time to time, but one of these, namely, the magnetic state of some boreholes, does not appear to have received the attention it merits, and it would be interesting to learn the experiences and conclusions arrived at by practical oil field men who have encountered this occurrence.

No doubt many oil men know of instances where tools and casing are found to be highly magnetised upon withdrawal from the borehole, as well as the lifting tackle and headgear in the derrick being affected in a similar manner to a lesser or greater degree.

Some little time ago an instance of this kind came under my notice. A pole became unscrewed while drilling, and the drilling bit with several poles attached remained in the borehole. As the casing was not moving freely, it was decided to move it before fishing for the lost tools; this was done, that is, the casing was raised and lowered several times from 4 to 5 feet. A fishing socket was then lowered in, which should have taken hold of the last tools at about 115 feet off bottom, instead of which it was found that the top of the lost tools was at 70 feet from bottom, at which depth a hold was taken. At the time this difference in depth could not be accounted for, as it was known that the tools and rods had not run away, but had simply become detached, and their maximum possible fall of 1 foot could not have accounted for the loss of measurement. When the lost tools were brought to the surface the above mentioned difference was explained, the rods which had been left behind having become bent more or less in the form of a helical spring. This coiling of the rods could be attributed to several ordinary causes as follows:

1. That the tools had fallen a long distance; this, however, was not the case.

2. That the fishing socket had been carelessly lowered in and the rods forced down. As every care was exercised when lowering in the socket, this could not have happened, and was proved by the fact that the rods above the socket were not in any way distorted.

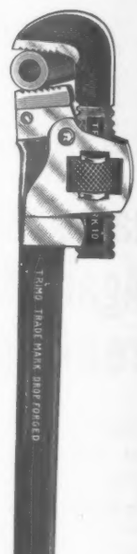
3. That poles had got below the casing shoe when it was lifted and had been forced down when the casing was lowered into position. As the rods stood about 100 feet inside the casing, this was obviously not possible.

4. It might be argued that one of the casing joints had caught the top of the poles or one of the pole joints when the casing was being let down. This is out of the question, because the casing was of the inserted joint type, perfectly flush on the inside, and careful examination showed no trace of catching.

This extraordinary occurrence of loss of distance and coiled rods could not be traced to any ordinary cause; and as it was known that the well was extremely magnetic, which was proved time after time by the conditions of the tools whenever they were withdrawn from the borehole, as well as the magnetised state of the lifting tackle and derrick headgear, it would appear that the magnetic influence of the casing was the cause of the occurrence.

One can assume that after the rods had become unscrewed they fell over to


# Twenty-Five Per Cent Stronger




It's a fact! Actual comparison shows the TRIMO Pipe Wrench to be twenty-five per cent stronger and more serviceable than any other on the market. That's worth thinking about when you buy a pipe wrench.

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Thus does the Columbia Recording Thermometer, with the new Time Punch and its day-and-night indelible record of temperatures, insure uniform temperatures. And that means lower operating costs, less spoilage, greater efficiency. Two wonderful instruments in one *for the cost of one.*

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one side and rested for some considerable distance in contact with the casing, probably 100 feet or more. The casing as a magnet had not sufficient power to lift the poles plus the drilling tools, but upon the casing being lowered into place each time after lifting it partly held and dragged the poles down with it owing to its magnetised condition, and at each subsequent lowering in the poles became more and more deformed.

It may be that highly magnetic boreholes may considerably affect drilling as well as fishing operations, whether with pole tools or with cable, therefore it would certainly be of interest to learn whether experiences of a similar nature have been met with and recorded.

ALBERT MILLAR.

Borysław, Galicia, Poland.

## ORIGIN OF PETROLEUM DESCRIBED BY RADIO

(Continued from Page 121)

way into rock. We have a similar shellfish on our Pacific Coast.

"After this temple was built, a slow sinking of the earth's crust took place there and the temple itself was lowered until the great pillars of the front were in water 21 feet from the pavement and these little shellfish leave their mark on the columns as a record of this sinking Then the earth rose and lifted the whole area up until today the water barely covers the floor. Since 1880, careful measurements have been kept of the rise and fall of the land; from 1880 to 1884 the ground was found to be sinking, but since then it has been rising steadily.

"If I were to take a piece of inner tube and stretch it at a tension on a flat surface, and then place upon that flat rubber under tension layers of different colored putty, it would make an excellent model of the layers of the sedimentaries as laid down on the ocean bottoms of the prehistoric seas. Then by loosening one end of the rubber base and allowing it to contract, the colored layers would form rolls and humps and about a quarter of the distance from each end would appear major folds while in the central part there would be less action and this central part would be a flat or only slightly rolled plane. This model would resemble in a striking degree the present day topography of the United States with the major roll on one side representing the Appalachian Mountains and the major roll on the other representing the Rocky Mountain uplift. This is a concrete example of what took place and what was responsible for the formation of our anticlines and oil structures of today.

**Subterranean Retorts**

"When these earth movements take place, great heat results. This heat so created could easily furnish the necessary temperature to make the chemical change in the shale content of the remains of life to petroleum and as the pressure increases with depth, the line of least resistance would be upward, thus the oil would migrate from the shale to the sandstone beds along the lines of least resistance, helped thereto by fault planes created by the movements. So we find it in the oil sands.

"The oil is held in the sand because there is an impervious cap of shale or other material that prevents the petroleum from escaping farther up towards the surface. It is in the sand, like a sponge holds water in its pores and not in great caverns.

"If I were to take a peck measure and fill it with baseballs, it may be said to be full, yet I could still pour marbles around the balls and then place small shot in the void spaces between the marbles. On top of all I could then pour into the measure a certain amount of water. This is an excellent illustration of a small portion of sandstone, magnified many times. In the sandstones of the earth is held the accumulations of petroleum we call oil or gas as the water is held in the peck measure."


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Fig. 427 Double Disc
Fig. 768 Wedge Disc

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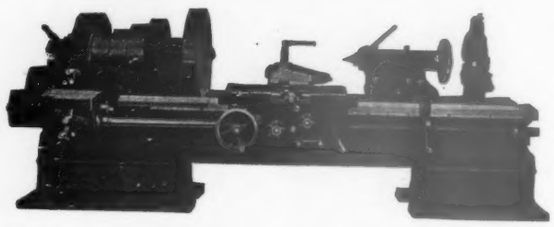

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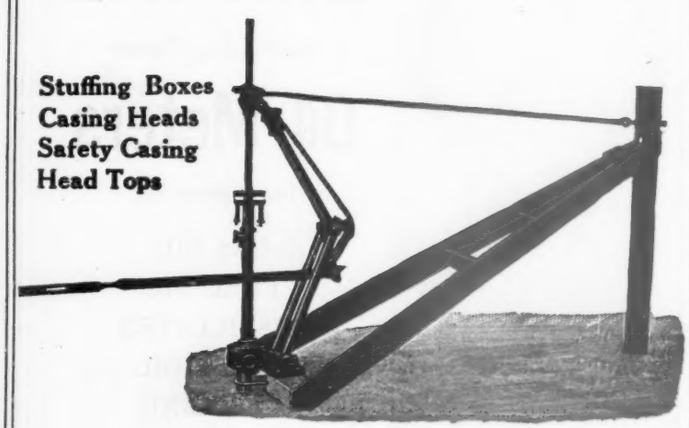

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## Spain Encouraging Drilling Enterprise By Tax Exemption

The visit of the chairman of Oilfields of England, Ltd., Charles E. Best, F. G. S., M. Inst. P. T., to Spain in December, about the time it was reported that an important find of petroleum had occurred near Saragossa, (in regard to which caution is advised), was directed London Oil News says, towards obtaining the inclusion of the year 1923 in the six years' exemption from annual "canon" or rent.

It may be recalled that on December 1, 1922, a royal decree was promulgated under the mining laws of Spain by King Alfonso, under which petroleum concerns drilling in Spain which had incurred an expenditure of 500,000 pesetas in their operations could petition for exemption from payment of the annual canon for a period of six years or until oil was found in commercial quantities by them. The drawing up of the decree was facilitated by the information given to the departments concerned by the two leading companies operating in Spain—the Cia. Petrolera Ibero-Americana S. A. (the Spanish subsidiary of the Interocean Oil Co.), and La Petrolifera del Ebro, S. A. (the Spanish company associated with Oilfields of England, Ltd.)

Mr. Best was honored on July 28, 1922, with an audience command at the royal palace, Santander, when he attended with Count de Velayos, the president of La Petrolifera del Ebro, S. A. The king showed a lively and well-informed interest in oil, and wished all success to the efforts being made to develop a commercial supply of petroleum in Spain. The royal decree followed. Facilities for relief from customs duties on import of plant and material into Spain were also accorded.

Petitions for grant of exemption from canon were proceeded with. While these were pending, there intervened the new regime in Spain—a military directory under General Primo de Rivera. This new regime decreed that canon must be paid for 1923, the year in which grant of exemption was made, on the ground that, canon having accrued from January 1, 1923, though not payable till December 31, 1923, the year for which it was payable, was already running.

This would have involved heavy payments being made with no resultant benefit to oil well drilling; it would have decreased any funds available for that useful purpose. A joint petition was then put forward by the leading oil companies having concessions in Spain—British, American, Spanish, and French—for inclusion of the year 1923 in the exemption period. It was with the resolve to put in a final big effort that Mr. Best made his journey in December to Madrid, attending a full board of La Petrolifera del Ebro, S. A. This board consists of Count de Velayos, the eldest son of Count Romanones, premier of Spain for many years, as president, Count del Valle, vice president, Marquis de Hoyos, Count Vallellano, Senor D. Joaquin Agote and Mr. Charles E. Best.

A full deputation of the board had audience of the military directory and other departments. Strong representations that the directory should take a large view of the situation in the interests of international friendship, were very ably put forward by Count de Velayos and Marquis de Hoyos, and favorable consideration was promised. On December 23, Oilfields of England, Ltd., was gratified to receive cables from Madrid that the petitions had been granted.

This is a most important achievement, as many thousands of pounds have been saved and will go far, in appreciation of such an enlightened policy on the part of the Spanish Government, to encourage further extended effort by the

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foreign capital, well equipped with oil-well machinery and backed by experienced oil men, which Spain needs for the exploitation of her oil fields.

It is understood that presently, when the general situation becomes more settled, and the political complexity at present prevailing, which is retarding investment, is solved, it is the intention of Oilfields of England, Ltd., to make arrangements for extended drilling in Spain.

The company has 200 square miles of concessions in the Provinces of Alava and Navarra, Northern Spain, granted in perpetuity direct from the Spanish Government. So far as geological research has proceeded, aided by information obtained in the drilling of the first well to a depth of 2,000 feet in which well gas and a show of oil were encountered, it appears the concessions can be described as of closed structure containing oil in quantity in the Secondary rocks, the point remaining to be determined being at what depth the oil horizons can be reached.

Depth is the main factor in Spain. The strata present no real difficulties in drilling—in fact, drilling is easy and fast. That the country is rich in oil in the North seems a general opinion, and there is much evidence to support this view, such as the large asphaltic exposures, petroleum-saturated cap rocks, gas emissions, etc., that occur. Oilfields of England, Ltd., has done considerable research work. Beyond its northern boundary an important asphaltic exposure extends that can be traced for 40 miles, and is probably one of the largest asphaltic exposures in the world. Its geologist, Marshall Hall, expresses a confident opinion in regard to the concessions as to oil being present in quantity, and has selected further locations to be proceeded with where he anticipates a true oil horizon will be encountered at a moderate depth.

## ECUADOR EXPECTATIONS PROBABLY PREMATURE

For some time past there have been great expectations that Ecuador would prove an oil-bearing country, says a British Department of Overseas Trade report, just issued, and great was the rejoicing when the Anglo-Ecuadorean Oilfields, Ltd., operating in Santa Elena, on the coast close to Guayaquil, struck oil in May last; one well is capable of producing 250 barrels per day, and is temporarily closed down until sufficient barrels are forthcoming. In the Oriente, search for oil has so far not produced any result, and, even if discovered, the cost of transportation to the coast would militate against its value. The Leonard Exploration Co., an American undertaking, has done little to exploit its concession in that region. In May, 1920, an American concluded an agreement with the Government for the exploitation of oil in the province of Esmeraldas for 40 years. In return for the monopoly, he has undertaken to execute certain public works in the town of Esmeraldas. The average monthly production of refined petroleum in Ecuador for the half-year ended June 30, 1923, is as follows: Kerosene, 4,720 gallons; gasoline, 6,872 gallons.

## TESTS NEAR UNION CITY, OKLA.

MINCO, Okla., Feb. 2.—Robert Diehl and associates of St. Paul, Minn., have made a location for an oil test a few miles west of Union City, near the Canadian River on the Canadian County side. On the south side of the river and in the center of the northwest quarter of Section 6-8-8, White & Bowles of Oklahoma City have a steel derrick erected. This territory is attracting attention following a survey by T. A. White of Oklahoma City, formerly a geologist for the Shaffer Oil & Refining Co., and C. H Black, Oklahoma City geologist.


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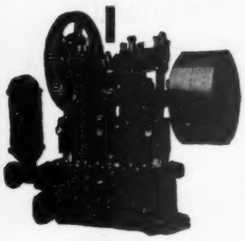

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## PORTS OF SHIPMENTS OF U. S. OIL EXPORTS

**Destination of Exports, 12 Months Ending December, 1923**

| | Quantity Gallons | Value |
|---|---|---|
| Crude Petroleum: | | |
| Exported to— | | |
| Germany | 13,928,488 | 679,323 |
| Canada | 370,695,209 | 12,990,043 |
| Mexico | 204,597,795 | 4,687,484 |
| Cuba | 13,970,509 | 855,074 |
| Argentina | 38,541,681 | 1,014,267 |
| Japan | 20,338,589 | 484,771 |
| Other countries | 54,479,591 | 2,400,854 |
| Gasoline, naphtha, other light products: | | |
| Belgium | 32,230,891 | 5,020,266 |
| Denmark | 10,347,661 | 1,706,555 |
| France | 229,592,663 | 32,044,633 |
| Germany | 14,552,142 | 2,322,713 |
| Italy | 34,448,881 | 5,304,434 |
| Netherlands | 10,957,780 | 1,640,710 |
| Norway | 4,309,234 | 779,327 |
| Portugal | 3,907,480 | 610,242 |
| Spain | 19,645,773 | 2,711,500 |
| Sweden | 15,849,218 | 2,765,846 |
| United Kingdom | 239,981,885 | 35,600,114 |
| Canada | 58,490,703 | 7,262,284 |
| Panama | 4,184,631 | 641,725 |
| Mexico | 3,209,877 | 472,491 |
| Cuba | 5,543,881 | 577,027 |
| Dominican Republic | 1,240,811 | 332,819 |
| Argentina | 28,128,606 | 6,760,084 |
| Brazil | 15,360,086 | 3,665,967 |
| Chile | 349,960 | 103,790 |
| Uruguay | 4,468,240 | 1,259,917 |
| Venezuela | 285,334 | 85,005 |
| China | 2,555,635 | 553,781 |
| Japan | 8,310,841 | 1,866,481 |
| Philippine Islands | 6,091,824 | 1,196,316 |
| Australia | 32,597,138 | 8,995,576 |
| New Zealand | 14,781,755 | 4,030,785 |
| British West Africa | 3,541,602 | 879,147 |
| British South Africa | 6,134,851 | 1,729,945 |
| French Africa | 12,439,483 | 1,821,040 |
| Morocco | 2,558,699 | 637,215 |
| Portuguese Africa | 2,774,692 | 753,775 |
| Other countries | 16,831,573 | 3,559,238 |
| Illuminating oil, kerosene: | | |
| Belgium | 29,052,532 | 1,614,706 |
| Denmark | 19,674,036 | 1,269,403 |
| France | 93,822,594 | 5,180,124 |
| Germany | 25,482,035 | 1,457,875 |
| Greece | 3,830,250 | 575,474 |
| Italy | 25,484,557 | 1,592,963 |
| Netherlands | 61,121,353 | 3,278,332 |
| Norway | 11,946,037 | 706,016 |
| Portugal | 6,839,428 | 452,864 |
| Sweden | 16,684,353 | 1,050,133 |
| United Kingdom | 106,757,481 | 5,932,700 |
| Canada | 6,656,560 | 480,620 |
| West Indies | 7,743,913 | 993,968 |
| Argentina | 12,683,734 | 2,154,246 |
| Brazil | 22,026,619 | 3,535,120 |
| Uruguay | 5,769,338 | 964,676 |
| British India | 53,949,378 | 3,808,007 |
| Other British E. I. | 5,770,140 | 800,039 |
| China | 145,523,134 | 17,038,088 |
| Chosen | 6,630,000 | 962,900 |
| Dutch E. Indies | 11,778,920 | 1,657,894 |
| Hongkong | 15,561,688 | 2,252,351 |
| Japan | 21,235,092 | 3,053,645 |
| Kwangtung, leased territory | 12,364,760 | 1,566,107 |
| Philippine Islands | 11,016,580 | 1,646,503 |
| Australia | 23,986,603 | 3,552,303 |
| New Zealand | 3,168,563 | 478,203 |
| British Africa | 17,071,941 | 2,602,185 |
| Egypt | 16,186,504 | 944,672 |
| French Africa | 8,641,252 | 730,787 |
| Other countries | 39,470,079 | 4,221,063 |
| Gas and fuel oil: | | |
| Belgium | 11,438,846 | 426,507 |
| Denmark | 24,925,329 | 924,390 |
| France | 31,972,179 | 1,386,393 |
| Germany | 48,032,616 | 1,546,438 |
| Italy | 54,628,687 | 1,753,608 |
| Netherlands | 22,687,089 | 789,825 |
| Norway | 11,707,963 | 412,661 |
| Sweden | 11,918,475 | 434,667 |
| United Kingdom | 149,979,293 | 5,482,310 |
| Canada | 153,170,797 | 4,373,665 |
| Panama | 197,124,102 | 4,904,516 |
| Mexico | 67,826,176 | 2,110,779 |
| British West Indies | 2,353,120 | 109,768 |
| Cuba | 5,755,692 | 246,074 |
| Virgin Islands, U. S. | 6,468,000 | 234,250 |
| Argentina | 53,800,485 | 1,291,433 |
| Brazil | 4,400,557 | 244,000 |
| Chile | 108,301,812 | 2,554,851 |
| Straits Settlements | 10,558,427 | 231,163 |
| China | 29,008,667 | 790,338 |
| Hongkong | 14,300,495 | 322,712 |
| Japan | 70,923,901 | 1,638,610 |
| Philippine Islands | 41,154,023 | 828,635 |
| French Africa | 15,618,052 | 451,317 |
| Other countries | 80,538,912 | 2,219,239 |
| Lubricating oil: | | |
| Belgium | 24,927,380 | 3,909,425 |
| Denmark | 6,146,092 | 985,592 |
| France | 55,360,169 | 11,770,068 |
| Germany | 37,028,030 | 5,068,189 |
| Italy | 20,260,532 | 4,363,986 |
| Netherlands | 4,045,581 | 936,926 |
| Norway | 1,371,131 | 455,465 |
| Spain | 6,744,334 | 1,669,480 |
| Sweden | 3,035,456 | 1,009,189 |
| United Kingdom | 88,460,354 | 17,645,727 |
| Canada | 10,560,867 | 2,519,073 |
| Mexico | 2,415,825 | 788,237 |
| Cuba | 3,273,909 | 1,038,397 |
| Argentina | 7,023,401 | 2,554,571 |
| Brazil | 6,824,778 | 1,866,615 |
| Chile | 3,099,176 | 748,401 |
| British India | 13,557,950 | 2,623,047 |
| China | 5,476,244 | 1,351,925 |
| Dutch East Indies | 2,137,174 | 674,897 |
| Hongkong | 1,220,072 | 390,734 |
| Japan | 10,705,688 | 3,329,285 |
| Philippine Islands | 1,739,452 | 577,112 |
| Australia | 8,886,283 | 3,172,599 |
| New Zealand | 2,583,015 | 742,921 |
| British Africa | 3,017,815 | 1,198,115 |
| Egypt | 2,077,826 | 527,110 |
| Portuguese Africa | 1,550,410 | 477,180 |
| Other countries | 13,893,639 | 4,262,040 |
| Paraffin wax: | | |
| Belgium | 5,309,098 | 193,404 |
| France | 2,137,974 | 85,905 |
| Germany | 9,298,722 | 306,098 |
| Italy | 44,598,151 | 1,509,625 |
| Netherlands | 5,616,034 | 190,150 |
| Spain | 13,442,646 | 505,612 |


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Ranger—J. F. Tennyson, 126.
Gorman—P. W. Burdette, 159.
Mingus—James Dailey, 56.
Wichita Falls—Gary Young, 3084.

We also operate stations at Bowling Green, Scottsville and Owensboro, Ky.

**The Eastern Torpedo Co. of Ohio**
611 First National Bank Bldg.
Tulsa, Okla.


| | | |
|---|---|---|
| United Kingdom | 105,898,142 | 3,213,939 |
| Central America | 4,314,160 | 171,707 |
| Mexico | 18,871,703 | 616,023 |
| Cuba | 3,179,788 | 146,251 |
| Argentina | 8,019,335 | 287,535 |
| Chile | 13,159,722 | 398,755 |
| Peru | 4,272,833 | 163,614 |
| Other South America | 13,954,860 | 575,048 |
| China | 30,249,491 | 1,151,300 |
| Hongkong | 3,299,415 | 135,546 |
| Japan | 8,860,789 | 359,033 |
| Australia | 1,781,432 | 61,338 |
| British South Africa | 5,854,241 | 218,339 |
| Portuguese E Africa | 7,393,700 | 273,263 |
| Other countries | 20,280,313 | 804,824 |

## SAFETY CAMPAIGN IN OIL FIELDS URGED BY U. S.

(Continued from Page 34)

is brought about by the familiarity of the risk under which they are working, and in no industry is this more forceably exemplified than in the oil fields. Men have performed the same or similar duties for many years and have worked around similar hazards and unprotected machinery until many have an entire disregard for the dangers surrounding them. Very often familiarity with a hazard occasions a contempt for that hazard which only too often results disastrously.

**Cooperation Needed**

It is therefore evident that the employer and employe must work hand in hand to attain the desired end of reducing these avoidable accidents to a minimum, but it remains for the employer to take the initiative. His first duty is to provide adequate and effective safeguards and safety devices for all dangerous machinery and working places and thereby show evidence of his earnestness to lessen the hazards around which his employes are forced to work. The employe should feel that whatever is done in the way of providing safeguards is for his benefit, and unless his full and willing cooperation is given, safeguards alone will not assure the total prevention of accidents.

Practically every accident in the oil fields and especially at the derricks is a repetition of a similar accident occurring at the same or other parts of the field. Thoroughly acquainting the workmen with the hazards they are working under will tend to avoid a large proportion of the accidents and especially if they then use care and judgment in fulfilling their duties.

The engineers of the Bureau of Mines believe that a great deal of good can be accomplished by visiting the various oil fields, talking with the operators, superintendents, foremen and workmen regarding safety and safety appliances and disseminating information by means of sketches, photographs and safety bulletins.

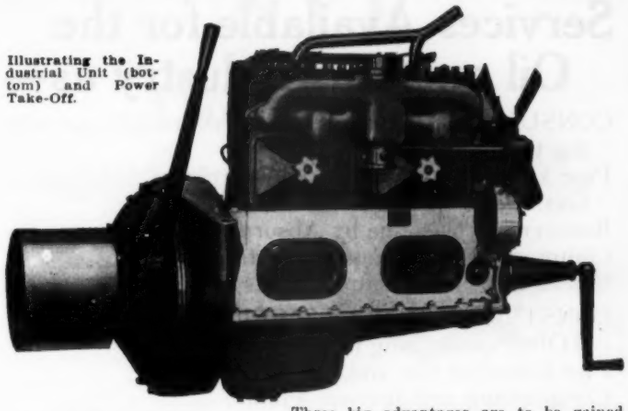
Serial 2557, "Industrial accidents in the California oil fields," may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

### BRITISH PRESTIGE AND OIL

According to reports received by the London Daily Telegraph from Persia, announcements alleging that the British Government, intended to dispose of its holdings in the Anglo-Persian oil fields have created an unfortunate impression in that country, where anti-British propaganda, both of Persian and of foreign origin, is just now very much in evidence. Attempts are being made to represent such a transaction by the British Government as a sign of Imperial weakness, and of the early elimination of all British influence from Mid-Asia. This impression, the Telegraph says, should be counteracted without delay. British representatives in Persia are seriously handicapped by the uncertainties of the political situation at home, which paralyses their initiative.

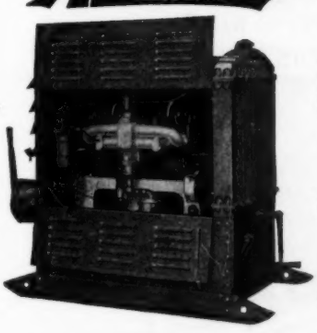
### ROXANA LEASES RANCH?

OKLAHOMA CITY, Okla., Feb. 2.—The Roxana Petroleum Corp. is reported to have leased the Stonebraker-Zea Ranch, in Texas County, consisting of 60,000 acres, and to have contracted to start a test for oil.

Illustrating the Industrial Unit (bottom) and Power Take-Off.

*Waukesha*
TRADE MARK



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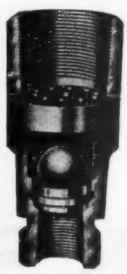

Cross Section of ROARK Standing Valve

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Texas Oil Pump Co
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## NEW ROTARY SYSTEM REPORTED IN RUSSIA

Under the title "Revolution in Deep Drilling Practice," the Baku journal, "Petroleum Management," publishes a summary of an article by A. P. Serebrowsky, the head of the oil industry in Russia. The original article, which was entitled "Possible Revolution in the Sphere of the Rotary Drilling System," deals with the invention of a Russian engineer named Kapelueschnikow. This consists of a hydraulically operated rotary drilling apparatus, which is described as follows:

In this new rotary drilling system the drill is driven by means of a hydraulic motor, which is enclosed in a special apparatus and can be lowered to the bottom of the well. Such an arrangement yields quite a number of advantages and conveniences, such as the elimination of steam engines, of the rotary equipment, special drill pipe, etc., which reduce initial costs considerably. Complete electrification of drilling operations is rendered feasible.

Reliability in working is immensely increased, as the drill pipe, which is subject to frequent breakage and to wear, is dispensed with, the power being transmitted direct from the motor to the drill and a great saving thus effected.

Drilling is accelerated three or four times over, as the long drilling column is not required, and it is consequently possible to increase the number of revolutions considerably.

The mechanical exigencies of the process are quite independent of the depth, i. e., drilling can be done to any depth. The new system also affords many other smaller practical advantages, as was demonstrated by the tests carried out at Baku.

The results of these tests were so satisfactory that an apparatus large enough for actual work has been made, and drilling operations are now being carried out with this on the Baku oil fields. Mr. Kapelueschnikow is one of the collaborators of the "Azneft" (Azerbaidjan Petroleum Trust). If expectations are fulfilled, the apparatus opens the way to the restoration of drilling activity in Russia on the pre-war scale.

## TAKE IT SERIOUSLY IN ENGLAND

At Southport, England, as reported in the London Oil and Color Trades Journal, George Thornton was summoned for allowing petrol to escape into a drain and John Boydell was summoned for aiding and abetting in the commission of the offense. A police-constable stated that he saw the defendant with a motorcycle, from which petrol was streaming into the highway, and he found they were draining the tank. Thornton told him they had been to the railway station in order to take the motorcycle home by train, but the officials refused to take the machine until the petrol had been taken from the tank. Thornton said there was not very much petrol in the tank, only about half a pint, but the chief constable pointed out that there was enough to cause a serious fire. The bench fined each defendant 10s.

## UTILIZATION OF EXHAUST GASES

Professor V. L. Maleev gives details in Oil Engine Power of interesting tests carried out this past summer in connection with a 160-b. h. p. gas engine. He says: With economy paramount as it is today it behooves every power plant to get the maximum efficiency from every ounce of fuel burned. The problem of utilization of waste exhaust gases is one that has come to the fore of late but about which comparatively little is known. In the past waste exhaust heat from gas engines has been utilized for various purposes. Experiences in this direction are valuable to oil engine men, although there is not so much heat available with oil engines as with gas engines, owing to the greater thermal efficiency of the former.

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## MAY ABANDON TRADE REPORTS

WASHINGTON, D. C., Feb. 2.—Early abandonment of the issuance of reports of prices, stocks and production by the commerce department, unless the Supreme Court takes a different view of the collection of statistics by trade association than the attorney general, was indicated by Secretary Hoover. He said it was not to be expected that trade associations would go to the trouble of gathering information which had to be sent to Washington in order to be distributed to its members. Mr. Hoover said he had heard an appeal was planned in the Cement Manufacturers' Association case which involves the principle of the right of associations to collect such statistics for their own use, but had no definite knowledge of the organization's legal plans.

## TEST SOUTH OF MARCH POOL

OKLAHOMA CITY, Okla., Feb. 2.—Grimes Bros. and Nelson of Oklahoma City have a location in the northwest of the northeast of Section 20-17-5, 3 miles south of the March Pool in the Cushing territory, and will drill to 3,800 feet. Geologists say the location is on a structure lying just west of a fault and of a syncline in which the Gypsy Oil Co. once drilled to 3,840 feet and found nine nonproducing sands. It is in a region where several big oil companies have renewed leases and paid rentals for several years.

## COST OF DRILLING IN AMERICAN FIELDS

(Continued from Page 34)

fore, came to $18,000, and the drilling contract was also higher at $2.75 a foot for the 2,800 feet, making the drilling cost, including miscellaneous items, about $12,000, and the total cost of the well $30,000, of which $6,000 could be salvaged.

In estimating the cost of drilling a well, the large companies allow a certain amount for unforeseen contingencies, such as fishing jobs, accidents, and unavoidable delays due to various causes. The amount of this allowance varies considerably, some companies basing it upon a certain percentage of the estimated cost of the well, and other using a fixed sum. The percentages vary from 2 per cent to 5 per cent, and the fixed sums from $500 to $2,000, depending upon a number of factors, such as the state of development of the field in which the well is to be drilled.

### Oklahoma

A representative 3,000-foot well in the Burbank Field:

| | | |
|---|---|---|
| Standard rig, complete, with cellar | | $3,800.00 |
| Drilling contract at $3.50 a foot | | 10,500.00 |
| Casing— | | |
| 20 feet of 20 -in. at | $7.83 | 156.60 |
| 950 feet of 15½-in. at | 5.49 | 5,215.50 |
| 1,350 feet of 12½-in. at | 3.07 | 4,144.50 |
| 1,700 feet of 10 -in. at | 2.41 | 4,097.00 |
| 2,350 feet of 8¼-in. at | 1.65 | 3,877.50 |
| 2,950 feet of 6⅝-in. at | 1.35 | 3,982.50 |
| Total pipe | | $21,473.60 |
| Casing shoes | | 122.70 |
| Casing clamps | | 49.50 |
| New tank, complete | | 235.00 |
| 1,500 feet water and gas line at $0.22 | | 337.50 |
| 80 days gas at $25 | | 2,000.00 |
| 80 days water at $10 | | 800.00 |
| Miscellaneous fittings | | 20.00 |
| Teaming | | 1,200.00 |
| Labor | | 600.00 |
| Total cost | | $42,338.30 |
| Allowance for unforeseen, 2% of total | | 846.76 |
| Total | | $43,185.06 |
| Salvage | | 13,165.80 |
| Actual cost of well | | $30,019.26 |
| Additional salvage if it had been a dry hole, 25% depreciation | | 9,189.40 |
| Actual cost of dry hole | | $20,829 86 |

The figures for equipment given above were standard prices prevailing at the close of 1923, and represent the cost of new material. In most cost estimates furnished by the larger producing companies, the prices given for rigs, pipe, etc. are fair values on used stocks carried in the warehouses of the companies, instead of new supplies. Much of this material is used over and over again.

The rigs used in drilling the above well

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No. 1

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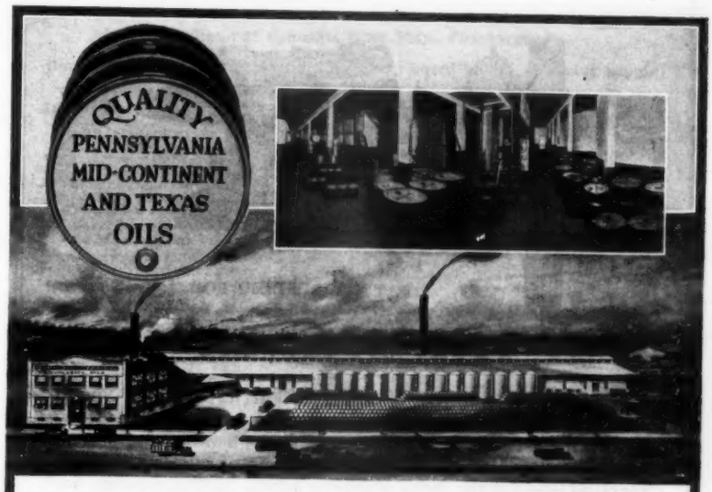


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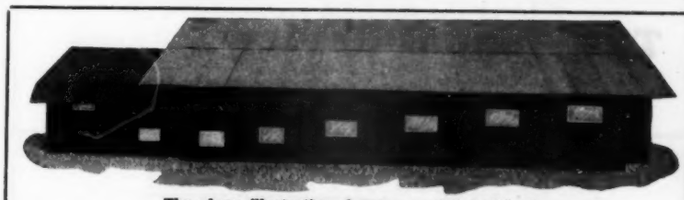
WHOLESALERS
North Kansas City, Mo.



The above illustration shows a special model of
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as used by the Tropical Oil Company in the Columbian, S. A., oil fields. It carries a corrugated, galvanized steel roof above the canvas roof. Completely collapsible. Screened against insects. Anchored against storms. Shutters adjustable to wind and weather. Many sizes and models.
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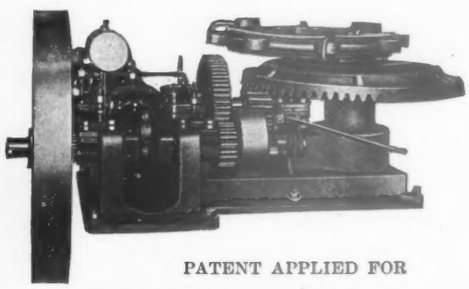

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was an average Burbank rig. If steel bull wheels, calf wheels and crown blocks are desired, the cost of the rig would be increased to about $4,500. Other items can be raised or lowered in similar proportions, according to the quality and type of equipment used.

**Creek County**

A 3,000-foot well in the Bristow district:

| | |
|---|---|
| Rig | $ 2,453.85 |
| Casing and tubing— | |
| 517 feet 15½-in. | 1,928.41 |
| 727 feet 12½-in. | 1,470.74 |
| 1,383 feet 10 -in. | 2,121.13 |
| 673 feet 8¾-in. | 945.52 |
| 2,977 feet 8¼-in. | 3,404.42 |
| 2,980 feet 6⅝-in. | 2,718.52 |
| Total | $12,588.74 |
| Lease and well equipment, shoes, clamps, control head | 332.10 |
| General expense | 718.68 |
| Development expense— | |
| Company labor | 117.98 |
| Contract labor | 90.00 |
| Drilling | 7,517.50 |
| Freight and teaming | 1,083.41 |
| Maintenance | 65.35 |
| Tools, fittings, etc. | 2.07 |
| Total | $ 8,876.31 |
| Grand total | $24,969.68 |
| Recovery | 4,771.90 |
| Net cost | $20,197.78 |

**Comparison of Oklahoma and Kansas Drilling Costs**

The total cost figures given below are net, less recovery, on individual wells drilled by large companies in the areas represented.

| Field— | Date | Depth | Contract Price per ft. | Total Net Cost |
|---|---|---|---|---|
| Burbank | 1923 | 2,990 | $3.50 | $30,000 |
| Osage (outside) | 1923 | 2,100 | 2.25 | 25,000 |
| Tonkawa (Rot.) | 1923 | 1,800 | 7.00 | 30,000 |
| Tonkawa (Rot.) | 1923 | 2,100 | 7.50 | 33,000 |
| Tonkawa (Rot.) | 1923 | 2,600 | 7.50 | 37,500 |
| Wewoka | 1923 | 3,050 | 4.00 | 38,000 |
| Depew | 1923 | 4,000 | 3.50 | 45,000 |
| Wetumka | 1923 | 3,500 | 4.00 | 44,000 |
| Greenwood Co., Kansas | 1923 | 2,200 | 1.75 | 20,000 |
| Cowley Co., Kans. | 1923 | 2,800 | 2.75 | 24,000 |
| Pershing | 1919 | 2,100 | 2.00 | 17,000 |
| Covington | 1919 | 2,500 | 5.00 | 48,000 |
| Duncan (Rot.) | 1919 | 2,200 | 4.50 | 22,000 |
| Hewitt (Rot.) | 1919 | 2,000 | 6.00 | 23,000 |
| Yale-Quay | 1918 | 3,128 | .... | 36,000 |
| Wildcat | 1917 | 2,690 | .... | 102,000 |
| Wildcat | 1917 | 3,397 | .... | 72,500 |
| Cushing (Mch.) | 1916 | 2,750 | 1.50 | 9,500 |
| Blackwell | 1916 | 3,988 | .... | 47,000 |
| Glen Pool (Mch.) | 1916 | 1,500 | .90 | 3,800 |
| Cushing | 1915 | 2,575 | .... | 9,500 |
| Cleveland | 1916 | 2,400 | 1.15 | 9,150 |

Standard tools were used except where indicated.

C. D. L.

**North Texas**

The cost of drilling a well in Texas is just about the same as drilling one in Oklahoma of the same depth.

In Wichita County, there are in some pools seven or eight sands, ranging from 250 feet to 1,900 feet. They are drilled with spudders, machines, rotary and cable tools, with the cost of lease ranging from nothing up to several thousand dollars per acre and so it is all over the field.

My opinion is that the cost of drilling a well in the deep lime field, or a test of say 3,500 feet in any section of the field, will average around $35,000 or $40,000. The tests in the semishallow fields, or say, from 1,300 to 2,000 feet, will average from $10,00 to $17,000. In the shallow tests from 250 to 600 feet the expense will range from $1,000 to $4,500. As to equipment, plants, storage, tanks, pipe lines, etc., the expense on no two leases is the same, or near the same.

—D. F. D.

**North Louisiana-Arkansas**

The approximate prices for drilling wells in the various districts in North Louisiana and Arkansas, when convenient to supply centers and hauling, fuel and other conditions are normal.

In Caddo, there are three distinct sands averaging 1,000, 2,360, and 2,900 feet. The shallow wells cost about $5,000; the 2,300-foot wells from $9,000 to $14,000, or an average of $12,500.

In the Haynesville district, the wells average 2,800 feet and cost between $17,500 and $18,000.

In the Smackover and El Dorado Fields in Arkansas, the 1,100- and 2,000-foot wells cost about $12,500 and the 2,600-foot wells average $17,000.

In the Stephens Field, the wells average 2,000 feet and cost about $10,000. This is a turnkey job with gate valve, but does not include the cost of lease or equipment for pumping. —M. L. V.


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### Wyoming

I am advised by one of the largest operating firms in this region that the wells average as follows:

| Field— | Av. depth | Cost per Well |
|---|---|---|
| Salt Creek | 2,300 ft. | $25,462.80 |
| Rock River, Big Muddy | 3,100 ft. | 55,227.60 |
| Grass Creek | 900 ft. | 9,300.00 |
| Torchlight | 600 ft. | 4,480.00 |
| Wildcat wells, 3,000 ft or below | | 100,000.00 |

This list includes fair samples of any drilling in this region and does not include a prorata cost of lease or equipment; this is the cost of the hole to the sands with casing but not pumping equipment. —F. B. T.

### California

It is rather difficult to arrive at a fairly reliable estimate on drilling costs in Southern California because of so many factors entering and at best may figure can only be an estimate. Conditions are so vitally different in each case that one cannot attempt to prorate the least cost in the well and the estimate is only the actual cost of finishing a well, i. e., cost of rig, machinery, fuel, labor, casing, etc. No account is taken of fishing jobs. Because of the many inefficient jobs that have been done in nearly all the new fields it is very difficult to arrive at a good estimate.

The depth and condition of each hole is still another important factor. If all wells were completed in the one sand, instead of many, it would be a very easy matter to arrive at a good figure, but where one well is brought in at 2,500 feet and another in the same field, only a short distance away, at 4,000 feet or deeper, it is quite difficult, if the average cost is desired.

Barring accidents, a well at Santa Fe Springs should be completed at a cost of from $85,000 to $125,000. Under the same conditions, a well at Long Beach would range from $85,000 to $150,000; at Huntington Beach, from $60,000 to $100,000; and at Torrance, from $70,000 to $100,000.

Turnkey jobs, that is a contract to finish a well at a certain depth, vary also, the usual quotation being approximately $3 a foot for a guaranteed job.

—L. P. S.

### West Kentucky

The cost of drilling a deep well in the Western Kentucky Field, which will average about 1,150 feet in depth, is approximately $3,025. This amount includes drilling, casing, tubing, shot and cleaning out, or in other words, ready to connect to power.

The average depth of the shallow wells in the Allen County district, is approximately 350 feet and it will cost about $1,000 to drill and get ready to connect to power.

The average price for drilling in the entire field is about $2 per foot.

—V. T. W.

### Central West

In reference to the cost of drilling of well in this district, consisting of Illinois, Indiana, Ohio, Michigan, Kentucky, and the South: Take the Trenton Rock Fields of Northwestern Ohio, the most level field yet developed in this country, and it is an utter impossiblity to figure on the cost of a well until it is connected and ready to pump. Say 10 wells are drilled on one lease, no two of them cost the same. The drilling price may be the same, but the difference in depths on the one farm, makes a wide variation, as does the cost of putting on the pump. Take an 80-acres for instance—the top of the sand may be found on the northeast corner at 1,200 feet, while to the southwest corner the sand is found at 1,000 feet. Back in 1891 I figured up the depth of 3,200 wells along the productive belt of the Lima Field, and the average depth of these wells figured the top of the sand at 1,205½ feet and at that time 100 feet in the sand was not even thought of, while today the wells are sunk deep down for lower pays. The deepest pay reported so far from the Trenton, was at 510 feet in that formation. At Tiffin, in Seneca County, the top of the Trenton is found all the way from 1,500 to 1,700 feet, and the sand penetrated as deep as 650 feet.

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In Central Ohio oil is found on one lease at 210 feet, while other wells are found in another pay at 500, 700, 900, 1,150 and as deep as from 2,700 to 3,400 feet. It can be readily seen that one cannot give a cost anywhere near correct of any one lease, to say nothing of a field or pool. In Kentucky oil is found at from 37 to various depths as low as 2,200 feet. The price of drilling per foot also varies a considerable in each field.

—G. A. W.

### Gulf Coast

In the Gulf Coast there is great diversity in depth, but generally deep and a proposition for big operating companies which have their own equipment. Taken as an average the cost of drilling in that district will run about $45,000.

### East Central Texas

A representative 2,953-foot test in the Powell Field, drilled with a rotary:

| | |
|---|---|
| Rotary rig, complete | $ 1,110.74 |
| Drilling contract at $3.00 | 8,859.00 |
| Fuel and water | 3,114.57 |
| Labor | 987.75 |
| Line pipe | 368.70 |
| Tubing | 1,033.55 |
| 10-inch casing | 122.68 |
| 6⅝-inch casing | 4,036.50 |
| 5 3-16-inch casing | 56.80 |
| Other equipment, nipples, gates, etc. | 362.03 |
| Miscellaneous, intangible items | 174.97 |
| Cost of standardizing | 1,906.06 |
| Total | $22,133.35 |

### Eastern Fields

The approximate depths and cost of wells in the principal producing sands of the Eastern Fields follow. The cost given includes nothing but drilling of wells, without equipment for well, cost of lease, etc.

D. S. W.

#### West Virginia

All depths computed from the Pittsburgh coal measure.

| County and sand— | Depth | Cost |
|---|---|---|
| Harrison, Big Injun | 1,656 | $8,236 |
| Harrison, Gantz | 1,900 | 8,000 |
| Harrison, 50-foot | 2,037 | 9,469 |
| Harrison, fifth | 2,840 | 10,000 |
| Harrison, Speechley | 2,890 | 11,000 |
| Harrison, Benson | 4,390 | 13,270 |
| Doddridge, Big Injun | 1,980 | 5,000 |
| Doddridge, Gordon | 3,042 | 7,660 |
| Tyler, Keener | 2,203 | 6,000 |
| Marion, fifth | 2,972 | 14,217 |
| Marion, Bayard | 3,220 | 15,000 |
| Calhoun, Salt Sand | 1,282 | 5,045 |
| Calhoun, Big Injun | 2,372 | 7,460 |
| Calhoun, Berea | 2,200 | 7,909 |
| Wood, Oriskany | 4,536 | 50,000 |

#### Southwest Pennsylvania

All depths computed from the Pittsburgh coal measure.

| County and sand— | Depth | Cost |
|---|---|---|
| Allegheny, Murraysville | 1,700 | $7,500 |
| Allegheny, 100-foot | 1,900 | 9,000 |
| Allegheny, 50-foot | 1,950 | 9,500 |
| Allegheny, 30-foot | 2,100 | 10,000 |
| Allegheny, Gordon | 2,200 | 11,500 |
| Allegheny, fourth | 2,250 | 12,000 |
| Allegheny, fifth | 2,325 | 14,000 |
| Allegheny, Bayard | 2,500 | 15,000 |
| Allegheny, sixth | 2,650 | 15,500 |
| Allegheny, Speechley | 3,000 | 17,500 |

#### Southeastern Ohio

| County and sand— | Depth | Cost |
|---|---|---|
| Washington, Cow Run | 450 | $1,200 |
| Hocking, Berea | 900 | 2,000 |
| Perry, Berea | 1,000 | 2,500 |
| Morgan, Berea | 1,200 | 3,500 |
| Hocking, Clinton | 3,300 | 15,000 |
| Meigs, Niagara Lime | 3,800 | 20,000 |
| Monroe, Big Injun | 1,800 | 5,000 |

### Canada

In the Ontario Fields, the cost of drilling varies less according to the field than according to the formation to be tested. Thus, in southwestern Ontario, production may be secured in either the Onandaga limestone (Corniferous formation) at from 300 to 500 feet, in the Clinton sand at varying depths to 2,200 feet; in the Niagara formation, usually around 1,300 to 1,400 feet; and in the Trenton limestone which may be reached at an average of 3,500 feet. As the depth of the formation varies, so does the cost of the well.

The following figures represent the cost of the finished well, cased, tubed and ready to produce, where drilled by contract.

In the Onondaga formation, a shallow oil well costs around $1,000; or perhaps $1.200. A test of the Niagara formation for gas, finished at 1,400 feet with contractors' drilling price of $2.50 per foot and casing time $50 per day, would approximate $8,500 for the finished well, tubed and cased. A test of the Clinton formation for gas, carried to 2,200 feet, with contractors' drilling price $3 per foot and casing time $50 per day, would approximate $12,000. A test of the Trenton limestone to 3,500-foot depth, finish-


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ing as a gasser, would with contractors drilling price, $3.50 per foot, casing time $50 a day and reaming $3 per foot, work out at about $28,000. Where oil is secured, however, the cost of the finished well would be higher, the well, cased, tubed and ready to operate by pumping, standing the operator about $36,500.

These estimates do not include any costs incident to leasing; and are based on ordinary good luck in drilling. In new territory or with considerable casing trouble, which sometimes occurs, costs might run considerably higher.

For the Canadian West it is practically impossible to furnish even a rough average, because, outside the gas fields, there are really no recognized fields. Drilling costs are higher than in eastern Canada, owing to high cost of transportation on materials brought from the East, long distance teaming and hauling from the nearest railroad points to the wells, and the fact that practically every test for oil is still a wildcat, drilled in almost untested territory.

In the gas fields the drilling cost of an ordinary well carried to say 2,200 feet might run $50,000. In the oil fields, there is really no averaging. Ten years ago the Dingman well, the discovery well in the Okotoks Field southwest of Calgary, was reputed to have cost $1,250,000 or more. About the same time the contract price of the Monarch well, drilled to 4,000 feet, was $75,000; with casing and other incidentals extra. Since then

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costs have largely increased; but on the other hand drillers are more familiar with formations and drilling conditions. There has been much deep drilling, to 3,500 feet or more and for wildcat tests carried to this depth, a fair approximation is $75,000 to $100,000, depending on what sort of drilling luck is encountered.

V. L.

**Mexico**

There are two field divisions, broadly speaking, in Mexico's real productive area, i. e., the northern fields, which means Topila, Panuco (the Cacalilao is merely an extension of Panuco), and Ebano. This is the heavy oil district, with comparatively easy transportation, water and fuel.

The southern fields commence some 60 miles south of Tampico and comprise the light oil district. Here transportation is more of a problem, as is, very often, water and fuel; and the distance from Tampico, the supply hub, is twice, plus, that of Panuco. Wherefore, drilling costs in this territory are much higher.

Companies, even the largest, are leaning more toward contractors in this day of general reduction of staffs. The contractor's rate, then, is the key to drilling costs at this time.

Northern Fields — Turnkey job, contractor furnishing everything but the drilling permit, casing, camp house for the crew and found: fuel and water, etc., say $30,000.

South Fields—If in the older defined productive areas of Chinampa, Amatlan, etc., say, $50,000 for a well as above noted.

The usual depth in both areas, based on prices above noted, is 2,500 feet.

There is no way of charging up (or "in," rather) lease costs, and after equipment of lease in the well drilling costs. There is nothing standardized to go on. Conditions may vary considerably with even adjoining leases.

G. B.

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# Oklahoma-Kansas and Eastern Pipe Line Report

## OKLAHOMA-KANSAS

### Pipe Line Statement for November

#### Runs

| Company— | Month | Daily Av. |
|---|---|---|
| *Prairie Pipe Line Co. | 3,390,000 | 113,000 |
| Gulf Pipe Line Co. | 1,119,929 | 37,331 |
| Texas Pipe Line Co. of Okla. | 536,614 | 17,887 |
| Magnolia Pet. Co. | 910,574 | 30,352 |
| Empire Pipe Line Co. | 761,934 | 25,398 |
| Cosden Pipe Line Co. | 608,431 | 20,281 |
| *Sinclair Pipe Line Co. | 615,000 | 20,500 |
| *Other lines | 6,810,000 | 227,000 |
| Total November | 14,752,482 | 491,749 |
| Total October | 13,728,260 | 442,848 |
| Difference | 1,024,222 | 48,901 |

#### Shipments

| Company— | Month | Daily Av. |
|---|---|---|
| †Prairie Pipe Line Co. | 2,660,566 | 88,385 |
| Gulf Pipe Line Co. | 886,976 | 29,566 |
| Texas Pipe Line Co. of Okla. | 387,276 | 12,909 |
| Magnolia Pet. Co. | 720,799 | 24,026 |
| Empire Pipe Line Co. | 751,514 | 25,050 |
| Cosden Pipe Line Co. | 647,170 | 21,572 |
| †Sinclair Pipe Line Co. | 1,181,140 | 39,371 |
| *Other lines | 6,000,000 | 200,000 |
| Total November | 13,225,241 | 449,839 |
| Total October | 13,302,342 | 429,108 |
| Difference | 77,101 | 10,731 |

#### Stocks

| | |
|---|---|
| Prairie Oil & Gas Co. | 23,500,000 |
| Prairie Pipe Line Co. | 1,750,000 |
| Gulf Pipe Line Co. & Gypsy Oil Co. | 9,121,909 |
| The Texas Co. | 7,038,592 |
| Magnolia Petroleum Co. | 8,165,831 |
| Empire Pipe Line Co. | 2,872,447 |
| Cosden Pipe Line Co. | 3,338,901 |
| Carter Oil Co. | 17,922,771 |
| *Sinclair Crude Oil Purchasing Co. | 30,325,000 |
| Other lines | 4,800,000 |
| Total November | 108,835,451 |
| Total October | 108,071,221 |
| Difference | 764,230 |

*Estimated. †Includes shipments of Texas crude oil.

Note—Stocks do not include approximately 7,000,000 bbls. of crude oil held in storage on private tank farms and leases.

### Daily Average Runs

#### Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

| | Nov., '23 | Dec., '23 |
|---|---|---|
| Nat. Transit | 178,880.95 | 180,363.54 |
| S. W. Pa. P. L. | 80,301.07 | 79,157.04 |
| Eureka P. L. | 345,268.16 | 358,438.80 |
| Buckeye P. L. (Macksburg) | 266,960.08 | 257,274.06 |
| Buckeye P. L. (Cleveland) | 15,777.99 | 15,419.37 |
| Buckeye P. L. (Lima, etc.) | 130,829.38 | 128,881.77 |
| Indiana P. L. | 13,120.99 | 11,555.83 |
| Cumberland P. L. | 368,174.21 | 364,727.40 |
| N. Y. Transit | 14,967.98 | 15,691.83 |
| Tidewater P. L. | 139,902.74 | 144,463.97 |
| Pure Oil P. L. | 179,108.65 | 181,806.87 |
| Emery P. L. | 31,556.95 | 31,157.28 |
| Indian Ref. | 292,637.55 | 291,762.78 |
| Paragon Dev. | 30,277.00 | 45,533.25 |
| Pittsburgh P. L. | 7,892.18 | 8,089.32 |
| Riggs Ref. | ..... | 4,430.31 |
| Union P. L. | 24,630.71 | 24,988.93 |
| Fords Br'k P. L. | 645.36 | 602.48 |
| Allegany P. L. | 1,913.90 | 2,068.76 |
| Total | 2,122,845.75 | 2,147,413.61 |
| Daily average | 70,761.52 | 69,271.41 |

Note: Indian Refining Co. also reported other receipts of 86,516.22 Paragon Refining Co. had other receipts of 125,403.71 bbls. Paragon Development Co. had other receipts of 366.14 bbls.

#### Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

| | Nov., '23 | Dec., '23 |
|---|---|---|
| Nat. Transit | 457,702.13 | 421,334.69 |
| S. W. Pa. P. L. | 284,551.72 | 291,869.75 |
| Eureka P. L. | 127,735.31 | 125,610.81 |
| Buckeye P. L. (Macksburg) | 95,645.60 | 61,221.78 |
| Buckeye P. L. (Cleveland) | 1,650.70 | 329.91 |
| Buckeye P. L. (Lima, etc.) | 666,847.26 | 613,417.44 |
| Indiana P. L. | 841,514.12 | 1,055,479.85 |
| Cumberland P. L. | 160,273.56 | 142,529.09 |
| Southern P. L. | 250.43 | ..... |
| Crescent P. L. | 32,231.40 | 74,316.59 |
| N. Y. Transit | 298,254.77 | 459,280.57 |
| Northern P. L. | 37,609.12 | 21,003.34 |
| Tidewater P. L. | 142,737.44 | 192,814.03 |
| Pure Oil P. L. | 170,167.25 | 142,535.76 |
| Emery P. L. | 31,279.78 | 33,433.42 |
| Paragon Ref. | 110,589.28 | 132,066.22 |
| Indian Ref. | 415,340.50 | 462,066.55 |
| Paragon Dev. | 36,367.94 | 48,614.54 |
| Pittsburgh P. L. | 10,803.18 | 5,267.23 |
| Union P. L. | 18,504.71 | 28,217.95 |
| Fords Br'k P. L. | 609.77 | 393.85 |
| Allegany P. L. | 1,910.03 | 1,862.82 |
| Total | 3,942,776.00 | 4,337,166.26 |
| Daily average | 131,425.87 | 139,908.59 |

Note: Indian Refining Co. also reported other deliveries of 40,871.00 bbls.

#### Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of November and December were as follows.:

| | Nov., '23 | Dec., '23 |
|---|---|---|
| Nat. Transit | 1,190,570.68 | 1,225,751.20 |
| S. W. Pa. P. L. | 743,388.59 | 710,075.60 |
| Eureka P. L. | 1,973,159.35 | 1,957,941.85 |
| Buckeye P. L. (Macksburg) | 476,597.93 | 560,577.20 |
| Buckeye P. L. (Cleveland) | 13,441.11 | 28,123.34 |
| Buckeye P. L. (Lima, etc.) | 4,313,302.50 | 3,884,990.13 |
| Indiana P. L. | 721,584.24 | 694,294.80 |
| Cumberland P. L. | 668,281.90 | 664,444.95 |
| Southern P. L. | 1,009,179.83 | 898,843.2e |
| Crescent P. L. | 83,400.95 | 99,435.12 |
| N. Y. Transit | 1,171,884.45 | 1,083,763.72 |
| Northern P. L. | 771,268.81 | 719,299.81 |
| Pure Oil P. L. | 331,262.95 | 369,820.56 |
| Emery P. L. | 5,790.85 | 4,790.93 |
| Paragon Ref. | 167,787.84 | 170,286.82 |
| Indian Ref. | 475,752.41 | 331,508.48 |
| Paragon Dev. | 3,403.46 | 3,451.90 |
| Pittsburgh P. L. | 8,879.34 | 8,331.70 |
| Riggs Ref. | ..... | 970.27 |
| Union P. L. | 22,969.51 | 19,916.8e |
| Fords Br'k P. L. | 294.96 | 512.67 |
| Allegany P. L. | 574.41 | 819.88 |
| Total | 14,157,726.07 | 13,444,361.06 |
| Decrease | 346,384.46 | 713,365.01 |

#### Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of November and December, showing the gross stocks of the above fields:

| | Nov., '23 | Dec., '23 |
|---|---|---|
| Pennsylvania | 3,818,921.71 | 3,936,846.09 |
| Lima | 916,253.97 | 977,079.18 |
| Kentucky | 1,900,641.05 | 1,814,965.15 |
| Mid-Continent | 6,937,331.92 | 6,391,317.89 |
| Illinois | 584,577.42 | 324,152.75 |
| Total | 14,157,726.07 | 13,444,361.06 |

#### Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years.

| | 1920 | 1921 | 1922 | 1923 |
|---|---|---|---|---|
| Jan. | 56,004 | 64,460 | 67,702 | 75,790 |
| Feb. | 68,699 | 70,054 | 75,096 | 71,093 |
| Mar. | 67,746 | 68,555 | 78,531 | 76,592 |
| April | 64,589 | 65,036 | 75,462 | 75,614 |
| May | 63,937 | 65,466 | 77,592 | 77,265 |
| June | 68,750 | 62,438 | 76,193 | 77,592 |
| July | 66,489 | 59,486 | 76,435 | 71,879 |
| Aug. | 63,861 | 64,888 | 79,387 | 76,910 |
| Sept. | 68,102 | 60,110 | 78,512 | 72,358 |
| Oct. | 65,066 | 57,688 | 77,209 | 76,256 |
| Nov. | 62,758 | 58,470 | 75,313 | 70,762 |
| Dec. | 60,975 | 61,000 | 73,351 | 69,271 |

#### Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

| | 1920 | 1921 | 1922 | 1923 |
|---|---|---|---|---|
| Jan. | 98,835 | 115,550 | 119,752 | 171,067 |
| Feb. | 107,146 | 96,736 | 111,362 | 164,219 |
| Mar. | 110,777 | 84,168 | 127,753 | 185,487 |
| Apr. | 114,090 | 101,015 | 127,068 | 179,751 |
| May | 110,219 | 100,253 | 127,840 | 177,102 |
| June | 102,598 | 105,037 | 137,638 | 173,598 |
| July | 112,340 | 97,096 | 137,872 | 168,330 |
| Aug. | 122,296 | 101,652 | 153,275 | 142,766 |
| Sept. | 127,131 | 117,440 | 153,761 | 137,266 |
| Oct. | 122,891 | 105,728 | 165,345 | 134,597 |
| Nov. | 117,730 | 121,803 | 165,677 | 131,426 |
| Dec. | 117,201 | 104,023 | 172,861 | 139,909 |

#### Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines, at the close of each month for the past three years:

| | 1921 | 1922 | 1923 |
|---|---|---|---|
| Jan. | 7,916,353 | 16,297,558 | 14,840,547 |
| Feb. | 8,721,878 | 17,099,292 | 14,020,430 |
| Mar. | 9,818,766 | 16,877,927 | 13,873,240 |
| Apr. | 10,369,941 | 16,777,842 | 13,797,870 |
| May | 11,224,694 | 16,948,962 | 13,615,622 |
| June | 12,328,126 | 16,810,169 | 14,041,250 |
| July | 13,798,698 | 16,235,239 | 14,043,866 |
| Aug. | 15,165,633 | 16,235,239 | 14,779,230 |
| Sept. | 15,526,750 | 16,228,545 | 14,503,466 |
| Oct. | 15,761,079 | 15,757,749 | 14,504,131 |
| Nov. | 14,971,071 | 15,171,972 | 14,157,726 |
| Dec. | 15,854,741 | 14,323,765 | 13,444,361 |

#### Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above.

| 1922— | Receipts | Shipments | Stocks |
|---|---|---|---|
| Dec. | 3,076.36 | 1,292.84 | 31,913.33 |
| 1923— | | | |
| Jan. | 2,798.55 | 2,461.36 | 32,250.52 |
| Feb. | 2,692.93 | 933.33 | 34,017.31 |
| Mar. | 3,976.53 | 13,417.00 | 24,576.84 |
| Apr. | 3,529.12 | 3,004.69 | 25,100.27 |
| May | 3,538.73 | 4,356.42 | 24,282.58 |
| June | 2,937.71 | 4,742.79 | 22,477.50 |
| July | 2,996.64 | 1,471.97 | 23,442.17 |
| Aug. | 3,199.07 | 3,769.34 | 22,871.90 |
| Sept. | 2,829.79 | 5,822.33 | 19,883.37 |
| Oct. | 2,694.23 | 5,261.81 | 17,316.79 |
| Nov. | 2,980.66 | 4,156.93 | 16,154.47 |
| Dec. | 2,893.07 | 5,499.37 | 13,548.17 |

#### The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

| | |
|---|---|
| Gross stocks, Jan. 1 | 3,343,702.94 |
| Runs from wells | 894,571.91 |
| Other receipts | 149,367.10 |
| Regular deliveries | 240,944.06 |
| Other deliveries | 418,390.20 |

The amount of Illinois oil run by the Tidewater Pipe Line Co. in December was 29,613.13 barrels, and deliveries were 41,698.35 barrels. Adding these figures to those of the Illinois Pipe Line Co., makes the runs and deliveries from the Illinois field as follows:

| 1922— | Runs | Deliveries |
|---|---|---|
| December | 553,068.33 | 331,668.97 |
| 1923— | | |
| January | 599,239.86 | 476,958.04 |
| February | 496,421.79 | 332,566.13 |
| March | 625,906.81 | 673,920.76 |
| April | 521,916.87 | 432,543.43 |
| May | 624,107.98 | 533,313.99 |
| June | 582,511.82 | 599,127.77 |
| July | 594,653.42 | 649,289.17 |
| August | 594,747.94 | 597,123.12 |
| September | 542,561.59 | 395,251.49 |
| October | 576,867.09 | 347,512.98 |
| November | 546,859.43 | 286,699.99 |
| December | 534,185.04 | 282,542.43 |

The Tidewater Pipe Co., Ltd., also delivered in December 251,147.87 barrels of Oklahoma oil. The total deliveries of all grades by the Tidewater were 488,099.76 barrels.

## AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

| Av. bbls. per wk.— | ATLANTIC PORTS Baltimore | Boston | New York | Philadelphia | Others | Total | GULF COAST PORTS Galveston | New Orleans Baton Rouge | Pt. Arthur Sabine Pass | Tampa | Total | Total All Ports |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| August | 116,067 | 51,709 | 688,485 | 222,873 | 151,970 | 1,231,104 | ..... | 24,612 | 219,030 | ..... | 243,642 | 1,474,746 |
| September | 205,600 | 47,400 | 516,200 | 124,200 | 126,600 | 1,000,000 | ..... | 140,600 | ..... | ..... | 140,600 | 1,140,600 |
| October | 195,000 | 56,000 | 626,000 | 220,000 | 107,000 | 1,178,000 | ..... | 208,000 | ..... | ..... | 208,000 | 1,386,000 |
| November | 136,731 | 36,281 | 659,169 | 156,800 | 85,169 | 1,074,031 | ..... | 219,331 | ..... | ..... | 219,331 | 1,293,362 |

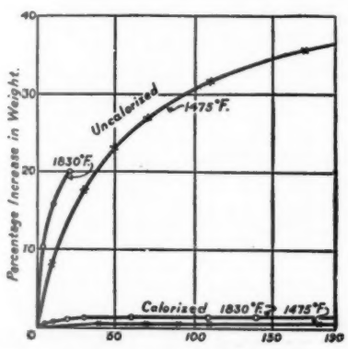
## AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

| Av. bbls. per wk.— | ATLANTIC PORTS Baltimore | Boston | New York | Philadelphia | Others | Total | GULF COAST PORTS Galveston | Baton Rouge New Orleans | Sabine Pass Pt. Arthur | Tampa | Total | All Ports Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| June | 62,800 | 84,200 | 358,200 | 153,400 | 161,800 | 757,600 | 301,000 | 328,400 | 312,400 | 45,800 | 787,600 | 1,545,200 |
| July | 71,750 | 116,250 | 451,500 | 112,000 | 218,750 | 970,250 | 367,750 | 280,000 | 208,250 | 23,000 | 879,000 | 1,849,250 |
| August | 116,065 | 89,113 | 374,613 | 103,970 | 197,127 | 879,888 | 338,485 | 266,224 | 284,388 | 45,632 | 1,295,730 | 2,175,618 |
| September | 53,600 | 113,000 | 353,200 | 132,000 | 149,600 | 801,400 | 355,300 | 279,400 | 176,000 | 44,800 | 714,200 | 1,515,600 |
| October | 91,250 | 48,000 | 198,500 | 134,000 | 204,000 | 800,750 | 247,000 | 352,500 | 95,000 | 12,500 | 707,000 | 1,507,750 |
| November | 67,200 | 108,869 | 270,669 | 122,500 | 195,060 | 764,200 | 345,490 | 359,331 | 147,469 | 33,367 | 885,731 | 1,649,931 |

## PRODUCTION BY MONTHS AND DAILY AVERAGE PRODUCTION IN THE U. S. FOR 12 MONTHS

| | | California | Oklahoma | Texas | Kansas | Arkansas | Louisiana | Wyoming Montana | Other Fields | Totals |
|---|---|---|---|---|---|---|---|---|---|---|
| 1922— December: | Month | 15,426,810 | 13,155,416 | 8,707,931 | 2,649,900 | 1,596,500 | 2,463,291 | 3,108,566 | 3,149,445 | 50,259,859 |
| | Daily average | 497,639 | 425,336 | 280,901 | 85,320 | 51,500 | 79,461 | 100,386 | 101,596 | 1,621,739 |
| 1923— January: | Month | 16,457,445 | 13,228,574 | 8,851,009 | 2,826,611 | 2,317,002 | 2,428,018 | 3,124,707 | 3,423,518 | 52,756,884 |
| | Daily average | 530,885 | 426,817 | 286,484 | 91,181 | 74,742 | 78,323 | 100,797 | 110,436 | 1,701,867 |
| February: | Month | 16,426,759 | 13,045,020 | 7,663,992 | 2,748,660 | 2,258,984 | 1,084,008 | 3,933,192 | 2,907,240 | 49,066,855 |
| | Daily average | 586,670 | 444,465 | 273,714 | 91,622 | 80,678 | 67,286 | 104,364 | 104,405 | 1,753,224 |
| March: | Month | 19,608,192 | 13,955,828 | 8,462,783 | 2,847,040 | 2,970,575 | 2,312,600 | 3,374,778 | 3,464,520 | 56,996,316 |
| | Daily average | 632,525 | 450,188 | 272,993 | 91,840 | 95,825 | 74,600 | 105,638 | 111,760 | 1,839,469 |
| April: | Month | 20,695,959 | 14,399,610 | 8,403,240 | 2,768,052 | 2,766,000 | 2,160,200 | 3,584,048 | 3,281,240 | 57,058,349 |
| | Daily average | 689,865 | 479,987 | 280,108 | 89,292 | 92,200 | 72,010 | 115,947 | 109,378 | 1,901,945 |
| May: | Month | 21,535,365 | 15,658,783 | 8,932,000 | 2,805,750 | 3,389,000 | 2,175,000 | 3,566,600 | 3,546,400 | 61,608,898 |
| | Daily average | 694,689 | 505,122 | 288,129 | 93,525 | 109,323 | 70,161 | 115,051 | 114,400 | 1,987,352 |
| June: | Month | 22,667,106 | 15,573,730 | 8,817,000 | 2,797,830 | 3,078,990 | 1,981,800 | 3,385,600 | 3,401,400 | 61,703,456 |
| | Daily average | 755,570 | 519,091 | 293,900 | 93,261 | 102,633 | 66,066 | 122,853 | 113,380 | 2,056,781 |
| July: | Month | 25,262,082 | 15,280,184 | 10,663,000 | 2,448,566 | 2,859,000 | 2,012,000 | 4,143,400 | 2,733,600 | 65,401,832 |
| | Daily average | 814,906 | 492,264 | 343,935 | 78,986 | 92,226 | 64,903 | 133,657 | 88,155 | 2,110,381 |
| August: | Month | 26,440,005 | 14,049,078 | 11,454,000 | 2,316,320 | 3,113,000 | 2,078,000 | 4,180,000 | 3,473,300 | 66,703,703 |
| | Daily average | 852,903 | 453,196 | 369,484 | 74,720 | 100,419 | 67,032 | 134,861 | 112,048 | 2,151,731 |
| September: | Month | 25,762,500 | 12,813,220 | 13,287,000 | 2,234,130 | 3,350,000 | 1,855,000 | 4,449,500 | 3,263,800 | 66,915,150 |
| | Daily average | 858,750 | 427,074 | 409,567 | 74,471 | 111,666 | 61,834 | 148,317 | 108,760 | 2,230,505 |
| October: | Month | 24,576,000 | 13,961,783 | 14,903,000 | 2,336,346 | 3,046,100 | 1,861,000 | 3,460,000 | 3,465,290 | 67,609,519 |
| | Daily average | 792,787 | 418,133 | 480,742 | 75,366 | 98,263 | 60,032 | 111,613 | 111,877 | 2,180,307 |
| November: | Month | 22,397,848 | 13,324,630 | 15,158,000 | 2,268,840 | 2,723,000 | 1,786,000 | 4,573,300 | 3,125,700 | 65,357,318 |
| | Daily average | 746,595 | 411,154 | 505,267 | 75,628 | 90,767 | 59,533 | 152,443 | 104,523 | 2,145,910 |
| | Twelve months | 257,256,471 | 165,863,843 | 124,231,954 | 31,048,045 | 33,468,051 | 24,197,017 | 43,772,991 | 39,302,570 | 718,940,942 |
| | Total daily average | 704,812 | 453,600 | 340,636 | 85,063 | 91,694 | 66,293 | 119,296 | 107,678 | 1,969,172 |

# -subject to identical conditions!

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At the left you see a plain steel tube, oxidized by heat. Steel, as you know, starts oxidizing at 900° F. At the right, you see a Calorized Tube. Note its perfect condition, after withstanding the same conditions that so badly scaled the plain steel. Calorized tubes withstand metal temperatures up to 1650° F.—and surrounding gases up to 2000° F. or over.

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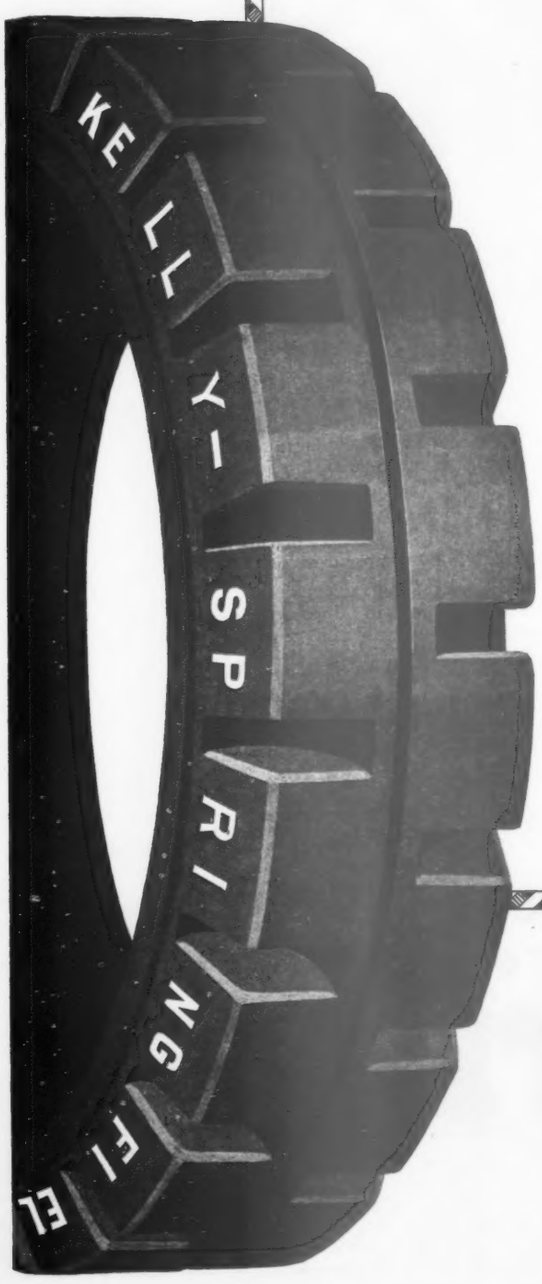


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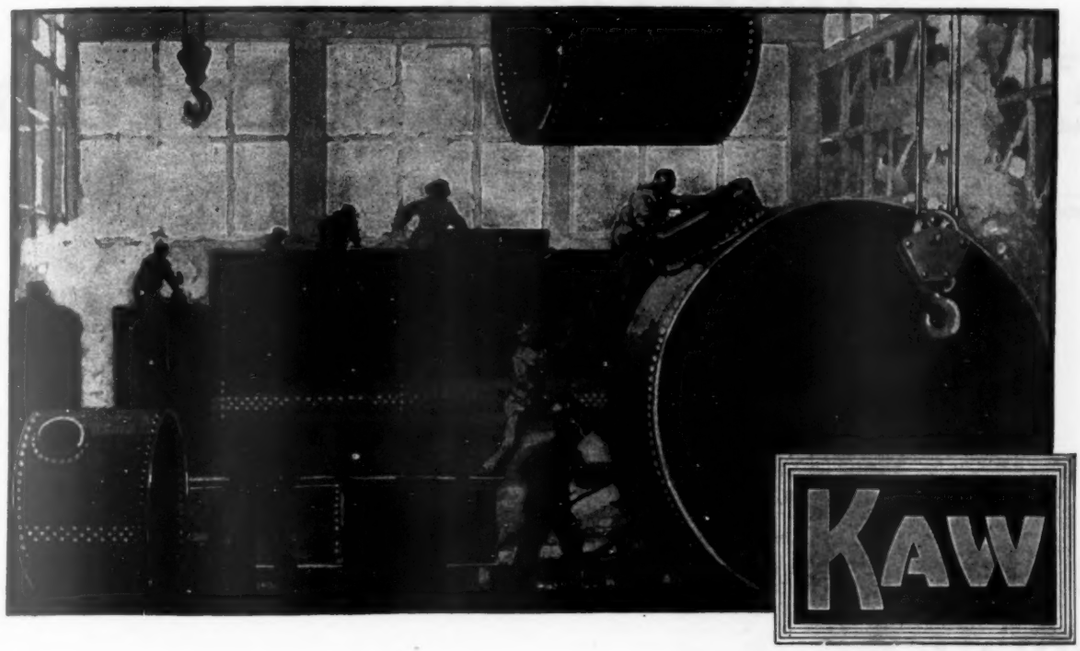


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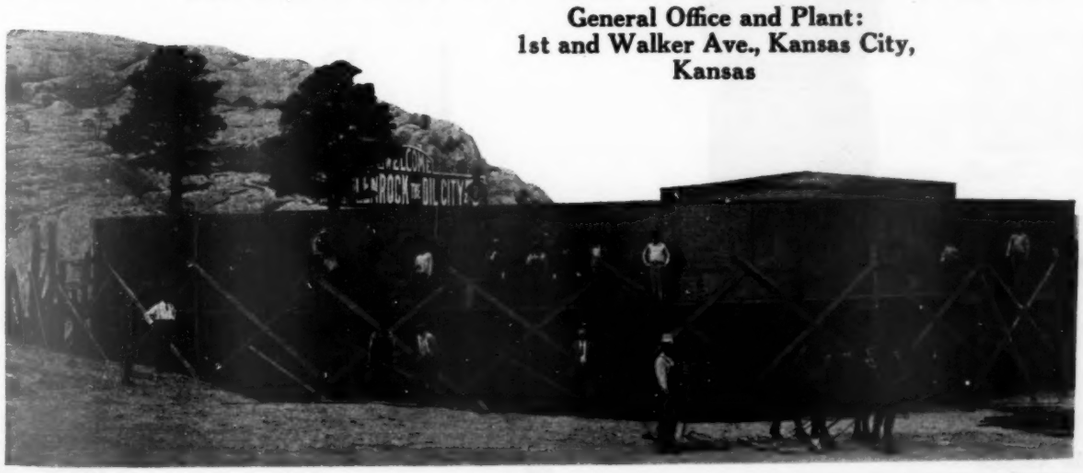

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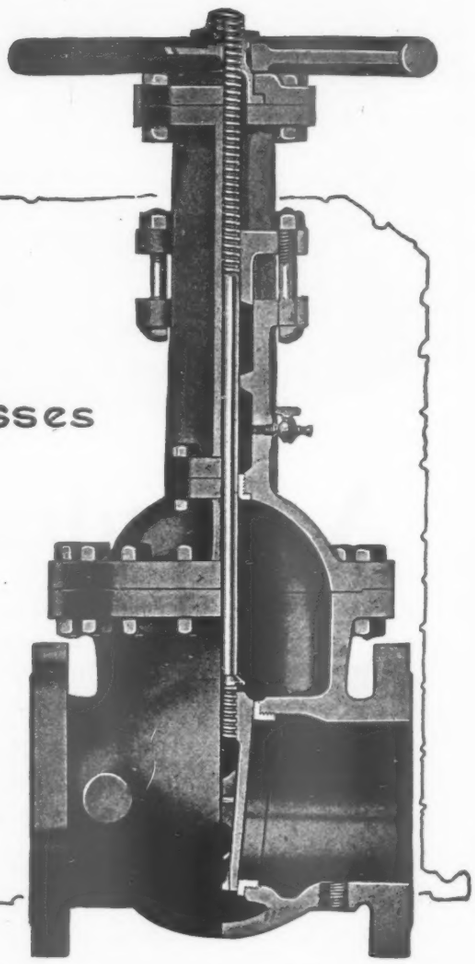

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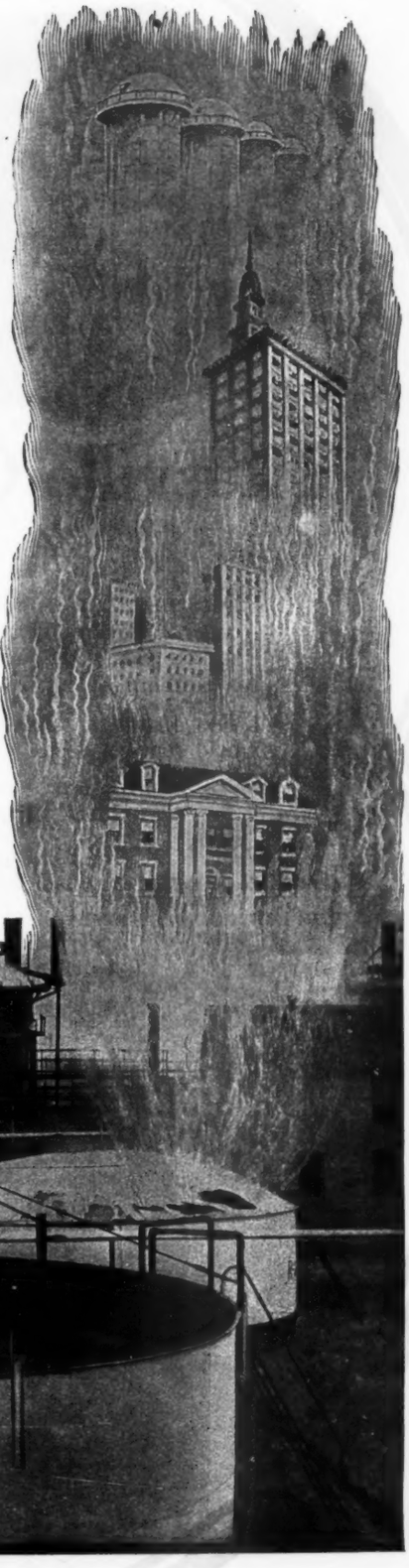

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*Partition Mounted, 3-Point Supported Truck Tanks.*
***Vapor Proof Bolted Steel Tanks for Field and Refinery.***
*Vapor Pressure and Vaccum Valves.*
*Floating Decks for Tanks, Vapor Proof, Fire Proof.*
*Horizontal and Vertical Storage Tanks, Welded.*
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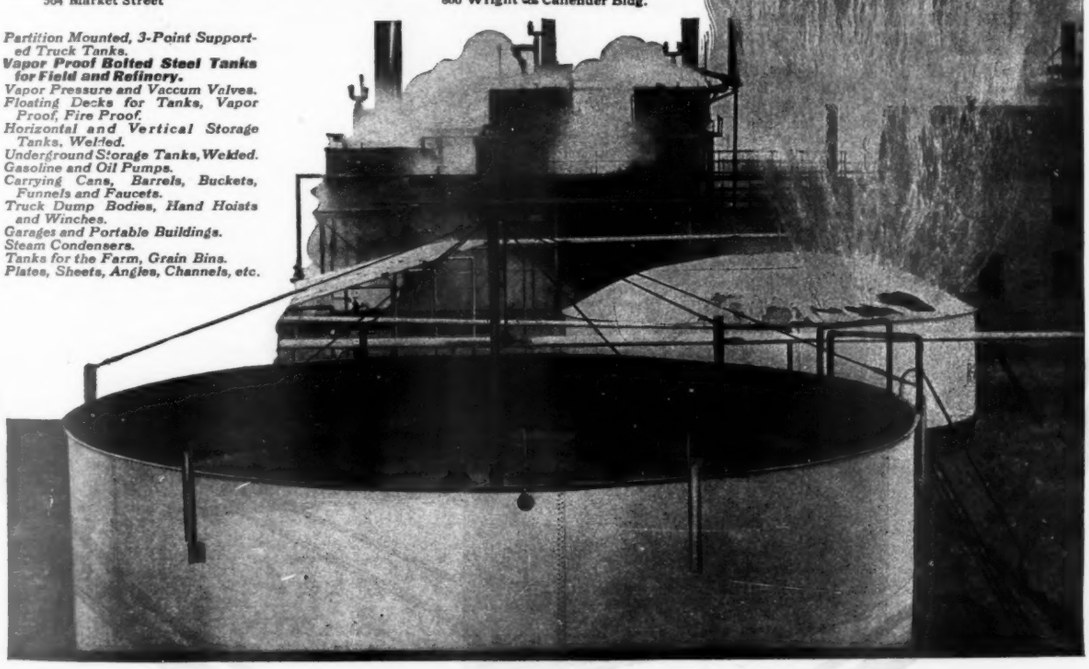
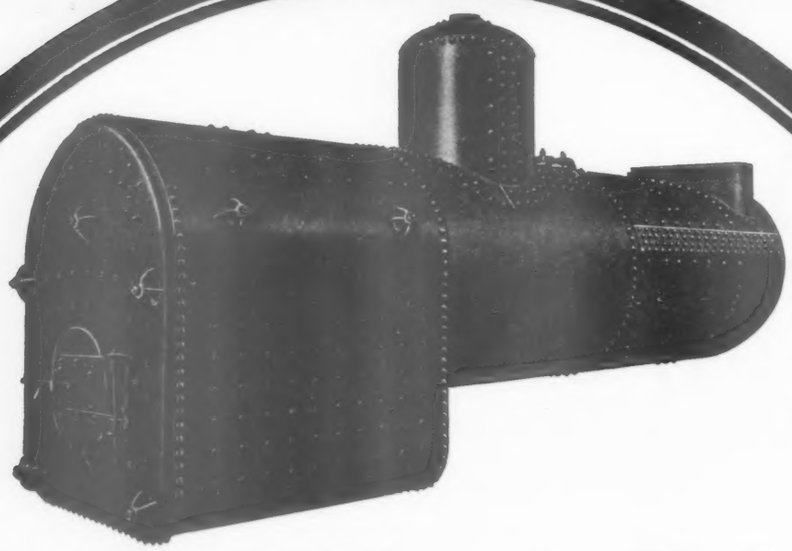
*Tanks for the Farm, Grain Bins.*
*Plates, Sheets, Angles, Channels, etc.*





# Titusville Oil Country Boilers

## *A. S. M. E. Code*

Designed to meet the exacting needs of the oil fields. Built by careful workmen in a modern shop. Maintaining a half century record for excellence that makes "TITUSVILLE" Oil Country equipment recognized as standard wherever wells are drilled.

The strongest, safest, most durable boiler manufactured for oil field service.

**Write for Bulletin**

**The Titusville Iron Works Company**
**Titusville, Penna.**

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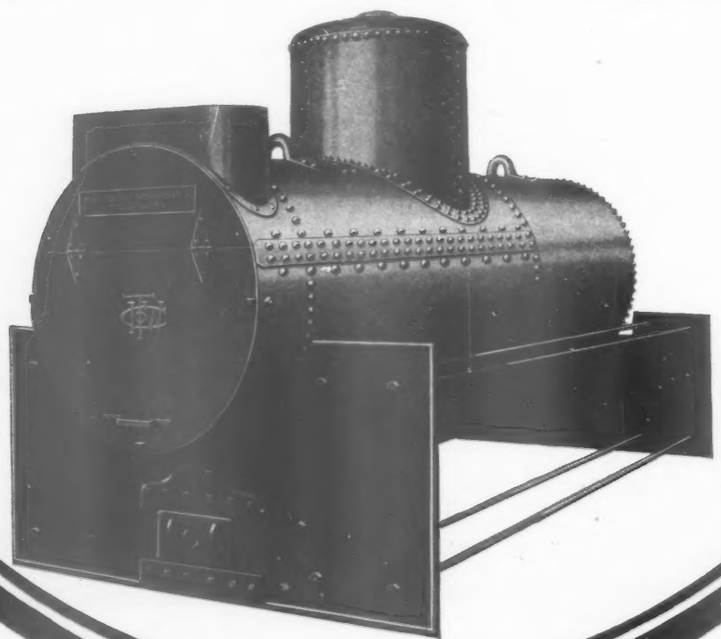
**THE CONTINENTAL SUPPLY COMPANY**

**For California:**
**THE REPUBLIC SUPPLY COMPANY OF CALIFORNIA**

**For Export:**
**THE CONTINENTAL SUPPLY COMPANY**
**2 Rector St., New York City**

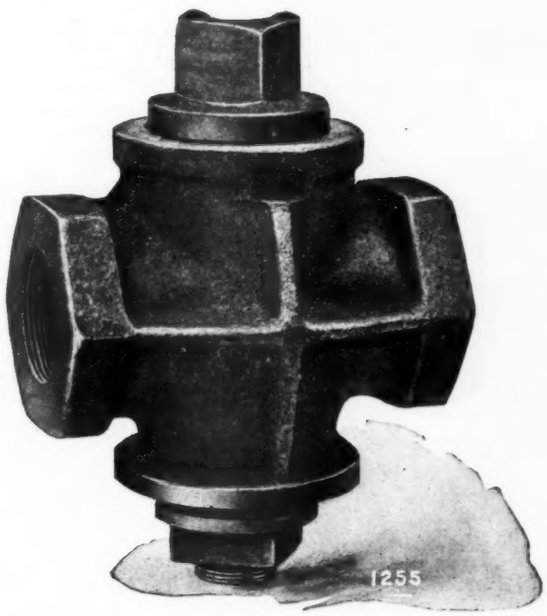


# *It does not leak*

# *Neither does it bind*

*What more can you ask?*
*"Price?" you say.*
*"Well, the price is away down. Just your name please and we'll whisper it to you."*
*No waits—1,000 in stock.*

**Hand Ground**




**TRANSIT Model 20 —2″—**

**Carefully Tested**

**LOCK STOP COCK**

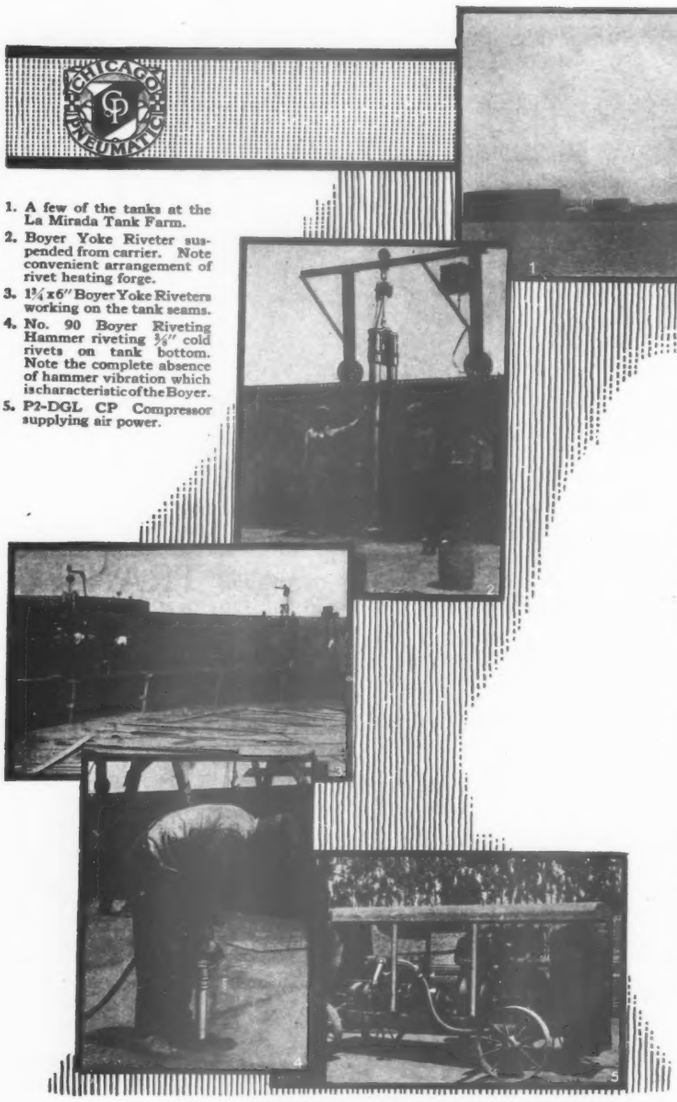
**STANDARD CONSTRUCTION:**
Iron body, iron plug, bronze nut and bronze washer.

**SPECIAL CONSTRUCTION:**
Iron body, gun metal plug, bronze nut and bronze washer. The gun metal plug is especially resistant to the action of salt water.

***Why not wire us to reserve a supply for you?***

## NATIONAL TRANSIT
## Pump & Machine Company
**OIL CITY, PENNSYLVANIA**

*District Offices:* **New York Philadelphia Pittsburgh Cleveland Tulsa Houston Denver**



1. A few of the tanks at the La Mirada Tank Farm.
2. Boyer Yoke Riveter suspended from carrier. Note convenient arrangement of rivet heating forge.
3. 1¼x6" Boyer Yoke Riveters working on the tank seams.
4. No. 90 Boyer Riveting Hammer riveting ⅞" cold rivets on tank bottom. Note the complete absence of hammer vibration which is characteristic of the Boyer.
5. P2-DGL CP Compressor supplying air power.

# A Boyer-Built Tank Farm

CHICAGO Pneumatic equipment was used on this construction when a prominent oil company operating in the lately developed oil field at La Mirada, California, erected their much needed tank farm.

Quick oil storage was imperative and, as usual in similar circumstances, the riveting equipment included Boyer Yoke Riveters and Riveting Hammers because of their proved ability to drive perfect rivets with speed and economy.

CP Compressors (Portable) made the air right at the tank side. The supply was constant and dependable. Expensive pipe lines and power leaks were eliminated.

Other Chicago Pneumatic Products, Gas Compressors, Giant Oil and Gas Engines, etc., are available to oil and gas operators interested in securing their production at a minimum cost.

*Bulletins sent on request*

## Chicago Pneumatic Tool Company

6 East 44th Street, NEW YORK, N. Y.

*Sales and *Service Branches all over the World*

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| *Chicago | El Paso | *New Orleans | Richmond | *St Louis | Brussels | Dairen | Honolulu | Manila | *Montreal | Rotterdam | Shanghai | *Toronto |
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Canadian Pneumatic Tool Company, Ltd., Montreal, manufacturers of Chicago Pneumatic products in Canada
Consolidated Pneumatic Tool Company, Ltd., London, manufacturers of Chicago Pneumatic products in England

J-131

BOYER PNEUMATIC HAMMERS · · LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
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*Depend upon that Name*

# "ISCO" connects oil field supply manufacturers *and* users through SERVICE~*Good Service!*

*Put your oil field needs up to us for Real Service on Quality Goods~NOW!*

ADV.4

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General Offices and Works
Tulsa, Okla.

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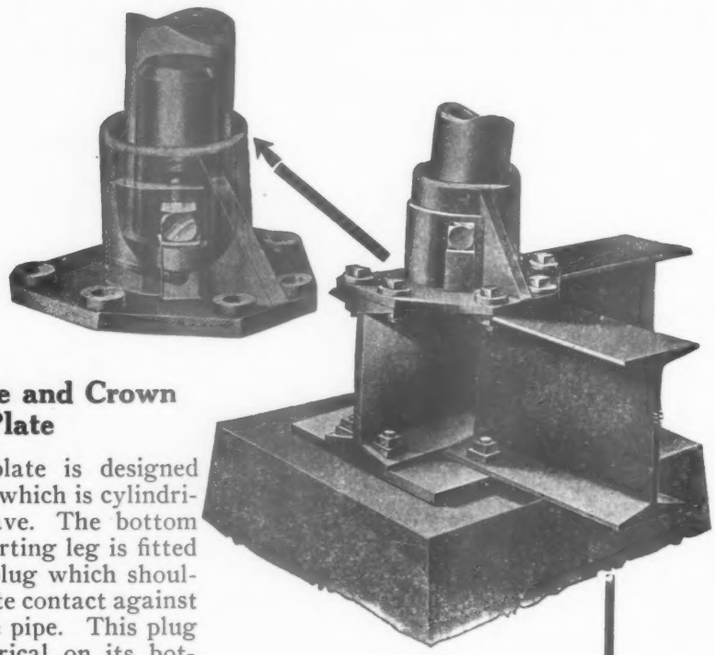
STEEL SUPERIOR DERRICK

# One of the Distinctive Features of Superior Steel Derricks



**Foot Plate and Crown Plate**

The foot plate is designed with a socket which is cylindrical and concave. The bottom end of the starting leg is fitted with a solid plug which shoulders in complete contact against the end of the pipe. This plug is also cylindrical on its bottom surface but convex. Thus complete surface contact is obtained between the starting leg and the foot plate, and an even distribution of the load throughout the entire perimeter of the pipe leg section is constantly maintained.

Castings identical to the foot plate are used as crown plates, each top leg section, however, being fitted with a crown sleeve with cylindrical end similar to the plug used in the bottom of each starting leg.

*Ask the driller who has used one*

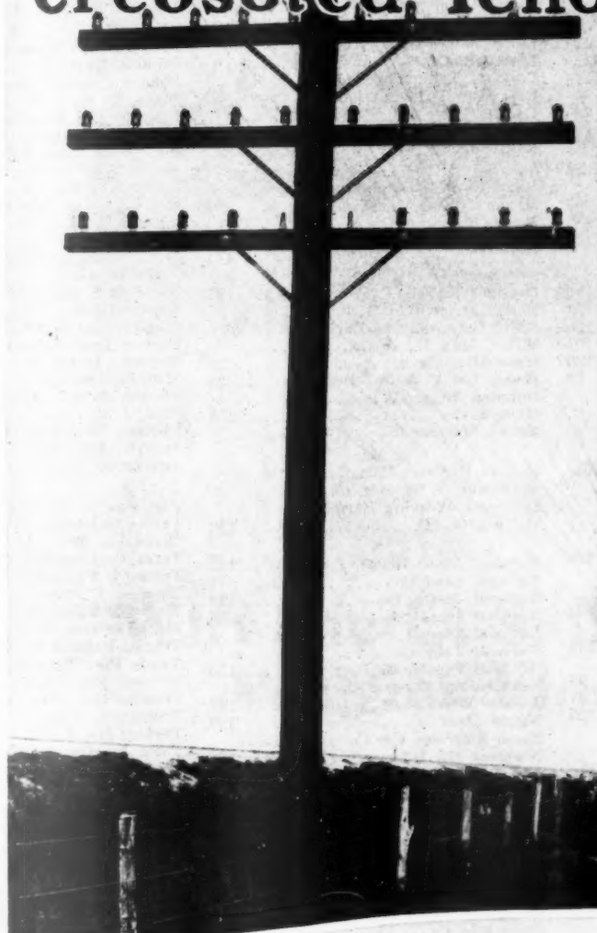
**SUPERIOR TUBE COMPANY**

**Steel Derricks Casing Tubing Line Pipe**

**Kansas City, Mo.**

**Pittsburgh Tulsa St. Louis Dallas Casper**

# International
## Creosoted Yellow Pine Poles



### Every One Perfect

PERFECT in selection, manufacture, seasoning, inspection, and perfect in treatment.

The International Creosoting & Construction Company not only produces and treats poles strictly in accordance with the best specifications of the day, but it does more—it provides a means of identifying these poles throughout their life in order to demonstrate the value of the careful measures taken during their manufacture and to protect you from inferior materials and poor workmanship.

The high quality embodied in International Poles—a quality which only the test of time can reveal, deserves its imprint in the form of a permanent identification.

For that reason we place an I. C. C. Co. Dating Nail, which contains our monogram and the date of creosoting, in every International Pole to prove to you that the quality is there and that every International Pole is a lasting tribute to International manufacture and treatment.

We have small, medium and large poles ready for shipment—just send your specifications and inquiries to our main office.

**International Creosoting & Construction Co.**

**General Office: Galveston, Texas**

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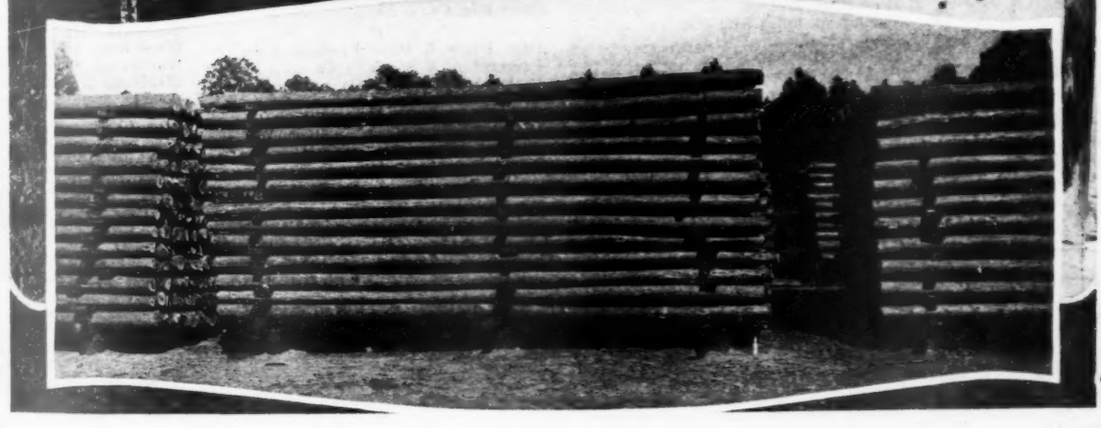
**Texarkana, Texas Beaumont, Texas**
**Galveston, Texas**



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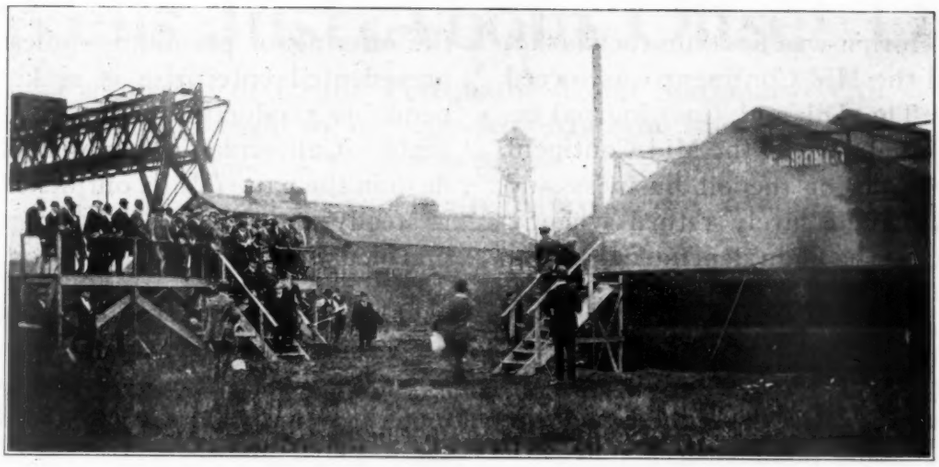

Many notable oil and insurance men attended the fire test held in October. This test proved the Wiggins Roof is fire safe.

# Why the U. S. Navy Uses the Wiggins Floating Roof

***Because no other type of device keeps fire out of the tank.***
***Because no other type of device keeps oil in the tank.***
***Because it is the most PRACTICAL means of solving the fire and evaporation problems.***

There in a nut shell are the facts which must have made officials of the United States Navy decide to use the Wiggins Floating Roofs. These three statements tell the truth about evaporation-saving and fire-prevention; that the Wiggins Roof is a practical device which will actually do what other means have failed to do—keep fire out, keep oil in.

Water-topping, gas-tighting, insulation, flooding, shading are all good, but only makeshifts at best. The one way to stop evaporation and reduce fire hazard is to take the air out of the tank.

**Annual Savings Due to Wiggins Floating Roof in 55,000-Barrel Tank Handling 10,000 Barrels a Day—in Barrels of Gasoline and in Dollars**

| Kind of Oil Pumped | Savings in Bbls. of Gasoline Over "Airtight" Roof | Savings in Dollars Over "Airtight" Roof* |
|---|---|---|
| Motor Fuel (58° Be. Gasoline)... | 6200 | $26.040 |
| Light Crude (37° Be.—40° Be.) | 3700 | 15,540 |
| Av. Mid-Cont. Crude (33°-36° Be.) | 2850 | 11,970 |

*Based on 42 gallons to the barrel and a price of ten cents a gallon.

CHICAGO BRIDGE & IRON WORKS

CHICAGO 2128 Old Colony Building
NEW YORK 3147 Hudson Terminal
DALLAS 1641 Praetorian Building
SAN FRANCISCO 1054 Rialto Building

HORTON Products include the 5 RING 55,7 RING 80 and other tanks, THE HORTONSPHERE and Refinery Equipment

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# Where the Oil Comes From

When California was flooding the market with oil and the Mid-Continent was forced to proration The Oil and Gas Journal reminded the industry that the Mid-Continent was the backbone of the oil business and that the day would surely return when it would again be the main dependence of our supply of petroleum.

That day has arrived. Even during 1923 operators invested more money drilling in the Mid-Continent than in all the rest of the country, California included.

The figures are impressive. Out of a total of $515,704,000 spent in the United States last year in drilling for oil $308,424,500 were spent right here in the Mid-Continent. The total for the rest of the country was only $207,279,500. Three out of every five dollars invested by operators were spent in the great fields of which Tulsa is the capital. More than half, 12,825, out of the total of 24,438 wells drilled, were drilled in the Mid-Continent.

With the resumption of activity, following the advance in prices caused by the decline of production elsewhere, 1924 promises to far exceed 1923 in operations in the Mid-Continent. There will be no proration to curtail work here this year. On the contrary, the offering of premiums indicates an unprecedented enterprise is seeking the dependable production of the Mid-Continent Field. California's flush districts were a flash in the pan. Mid-Continent production is steady and reliable, making it the great petroleum reservoir of the nation.

Oil men are attracted here because they know they can expect lasting results. Flush fields may distract them for a time but when scarcity threatens and prices soar they know the Mid-Continent is the place the oil must come from to make good the deficit elsewhere.

It was this realization of the paramount importance of the Mid-Continent that led to the establishment of The Oil and Gas Journal in Tulsa, at the center of Mid-Continent operations. It was the natural and logical site for the metropolis of oil, the clearing house for oil news, strategically situated in the heart of the continent.

Events and developments have abundantly confirmed that judgment. Just as oil men everywhere turn to the Mid-Continent for oil, year in and year out, they look to Tulsa and The Oil and Gas Journal for the news of the oil world which comes here to headquarters.

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Tulsa, Okla.,

You are hereby directed to mail The Oil and Gas Journal to me for_____ year. Enclosed find remittance $_____Start my order with the **Annual Review.**

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